IR026-10

GJPO–MRAP–19

Monticello Mill Tailings Site

Site Characterization Report for the Bureau of Land Management Compound, Monticello Peripheral Property MP–00181–OT, Phase I

July 1995

U.S. Department of Energy
Grand Junction Projects Office

Work Performed Under DOE Contract No. DE–AC04–86ID12584 for the U.S. Department of Energy

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Prepared For
the U.S. Department of Energy
Albuquerque Operations Office
Grand Junction Projects Office

Prepared By
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EXECUTIVE SUMMARY

The U.S. Department of Energy-Grand Junction Projects Office (DOE-GJPO) conducted a site characterization at DOE ID No. MP-00181-OT, Phase 1 (the Bureau of Land Management [BLM] Compound) located at the Monticello Mill Tailings Site, Monticello, San Juan County, Utah, from June 1989 through November 1993. The site characterization was conducted to determine if Comprehensive Environmental Response Compensation and Liability Act (CERCLA) hazardous substances (other than radium-226) had potentially been released on the property, and was warranted because of the nature of past activities at the site.

Portions of the property that warranted investigation for the presence of hazardous substances included: (1) Buildings 1, 2, 6, 7, 8, 9, and 10, (2) Foundations A, B, C, D, E, and F, (3) a concrete tank, (4) an abandoned well, (5) a concrete diversion ditch, (6) two 55-gallon drums and (7) petroleum underground storage tanks (USTs).

No evidence of hazardous substance release was found for Buildings 1, 6, 8, 9, and 10 and adjacent soils; Foundations A, D, E, and F and adjacent soils; sediment in the concrete diversion ditch; the soil adjacent to the abandoned well, and the grounds in general.

Areas of concern for hazardous substances requiring special management as defined by the *Monticello Remedial Action Project Special Waste Management Plan for the Monticello Mill Tailings Site and Vicinity Properties* (DOE 1995) were identified in the following locations: (1) Building 2 crawl space, Building 7 valve pit sediment, Foundation B drain pit, Foundation C drain pit, the concrete tank water contents, 55 gallon drums numbered 559 and 560, petroleum within the USTs. The contents of a small partially buried tank found within the crawlspace of Building 2 were not characterized. Historic information collected regarding this tank indicated that it was used to collect shower water only.

The soils from the identified areas of concern will be managed at the time of remediation according to the requirements defined by the *Monticello Remedial Action Project Special Waste Management Plan for the Monticello Mill Tailings Site and Vicinity Properties*. No further characterization of these areas is recommended. It is recommended that at the time of remediation the water contents of the small partially buried tank within the crawlspace of Building 2 be characterized per the requirements of the *Monticello Remedial Action Project Special Waste Management Plan for the Monticello Mill Tailings Site and Vicinity Properties* (DOE 1995). This document recommends straightforward cost-effective characterization methods for materials encountered during remediation. The characterization activity is documented using field documentation and does not require the development of site-specific sampling and analysis plan, nor the reporting of the characterization results using a site characterization report.

Further characterization, other than that described for the small partially buried tank, is not recommended for this property. If during remediation, suspect hazardous substance areas are unexpectedly encountered, the procedure outlined in the *Monticello Remedial Action Project*

Special Waste Management Plan for the Monticello Mill Tailings Site and Vicinity Properties (DOE 1995) will be implemented.

1.0 INTRODUCTION

The Monticello Mill Tailings Site (MMTS) was placed on the Comprehensive Environmental Response, Compensation, and Liability Act's (CERCLA) National Priorities List in 1989 to ensure that appropriate actions are taken to protect public health and the environment from hazards created by past operations. The MMTS project addresses the remediation of peripheral properties that are included as Operable Unit II. The subject of this report is peripheral property MP-00181-OT, Phase I, commonly referred to as the "BLM Compound". The purpose of this report is to communicate the results of a characterization of the BLM Compound for the possible existence of CERCLA hazardous substances, and to recommend cleanup requirements and/or waste management requirements.

Environmental restoration of the MMTS is prescribed in a Federal Facility Agreement (FFA) signed in December 1988 among the U.S. Department of Energy Grand Junction Projects Office (DOE-GJPO), the U.S. Environmental Protection Agency, and the State of Utah. In accordance with the FFA and CERCLA, the DOE-GJPO is responsible for cleanup of hazardous substances that equal or exceed risk-based standards and for the management of wastes generated during the remediation in compliance with all applicable or relevant and appropriate requirements.

This site characterization was performed in accordance with the processes and concepts outlined in the *Monticello Remedial Action Project Special Waste Management Plan for the Monticello Mill Tailings Site and Vicinity Properties*[1] (DOE 1995) and the Rust Geotech *Environmental Procedures Catalog* (Manual 116).

1.1 Definitions

Area of Concern - an area suspected of a hazardous substance release from analysis of site assessment information. Areas of concern generally warrant follow-up characterization or remediation.

CERCLA Hazardous Substance - the term "hazardous substance" means (A) any substance designated pursuant to Section 311(b)(2)(A) of the Federal Water Pollution Control Act, (B) any element, compound, mixture, solution, or substance designated pursuant to Section 102 of CERCLA, (C) any hazardous waste having the characteristics identified under or listed pursuant to Section 2001 of the Solid Waste Disposal Act (SWDA) (but not including any waste the regulation of which under the SWDA has been suspended by Act of Congress, (D) any toxic pollutant listed under Section 112 of the Clear Air Act (CAA), (E) any hazardous air pollutant listed under Section 112 of the CAA, and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to Section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance

[1] This document was in progress at the time this site assessment was conducted.

under sub-paragraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

Contaminant or Pollutant - as defined by Section 101(33) of CERCLA, includes, but is not limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions, or physical deformations, in such organisms or their offspring. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under Section 101(14)(A) through (F) of CERCLA, nor does it include natural gas, liquified natural gas, or synthetic gas of pipeline quality. In conducting a removal action, the term contaminant or pollutant means any contaminant or pollutant that may present an imminent and substantial danger to public health and welfare.

Release - means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant). This definition excludes, among other things, any release of source, byproduct, or special nuclear material from any processing site designated under Section 102(a)(1) OR 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978. For purposes of the NCP, release also means threat of release.

Site Assessment - a thorough qualitative review of the site based on field observations and readily available existing information. Includes a review of property records to investigate past or current activities at a site or adjacent properties with respect to potential hazardous substance releases and inspection of the site for evidence of contaminant releases. If appropriate, this Site Assessment Report will include recommendations for site sampling and analysis.

On-Site Assessment - an on-site visit to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment data collected during the historical research and to generate, if necessary, limited sampling and other field data.

Verification Sampling - the collection of a representative sample of the remediated area for the purpose of establishing through analytical data that remediation activities have been adequately completed. Verification sampling, as used in this document should not be confused with the independent verification contractor's verification that will also be performed as part of the remediation process.

2.0 SITE LOCATION AND DESCRIPTION

The BLM Compound occupies approximately four acres adjacent to the western boundary of the Monticello Mill Tailings Site, which is located south of Monticello in San Juan County, Utah. Figure 2-1 shows the location of the property in relation to the millsite and the city.

The BLM Compound is predominantly flat, with a gradual slope from north to south. No permanent surface water bodies are present. As shown in Figure 2-1, seven one-story buildings (designated 1,2,6,7,8, 9, and 10) are present along with foundations from six former buildings (designated A, B, C, D, E, and F). Several other man-made features are present, including a buried concrete tank located at the east end of the property, an abandoned concrete well in the south central portion of the property, and a septic tank southwest of Building 6. A concrete-lined ditch approximately three feet deep extends along a north-south axis just east of Building. In addition, underground storage tanks (USTs) are believed to be present at locations east of Foundation E (one tank), south of Foundation E (one tank), and west of Building 2 (two tanks). The property is enclosed by a chain link fence with gates at the east and west ends.

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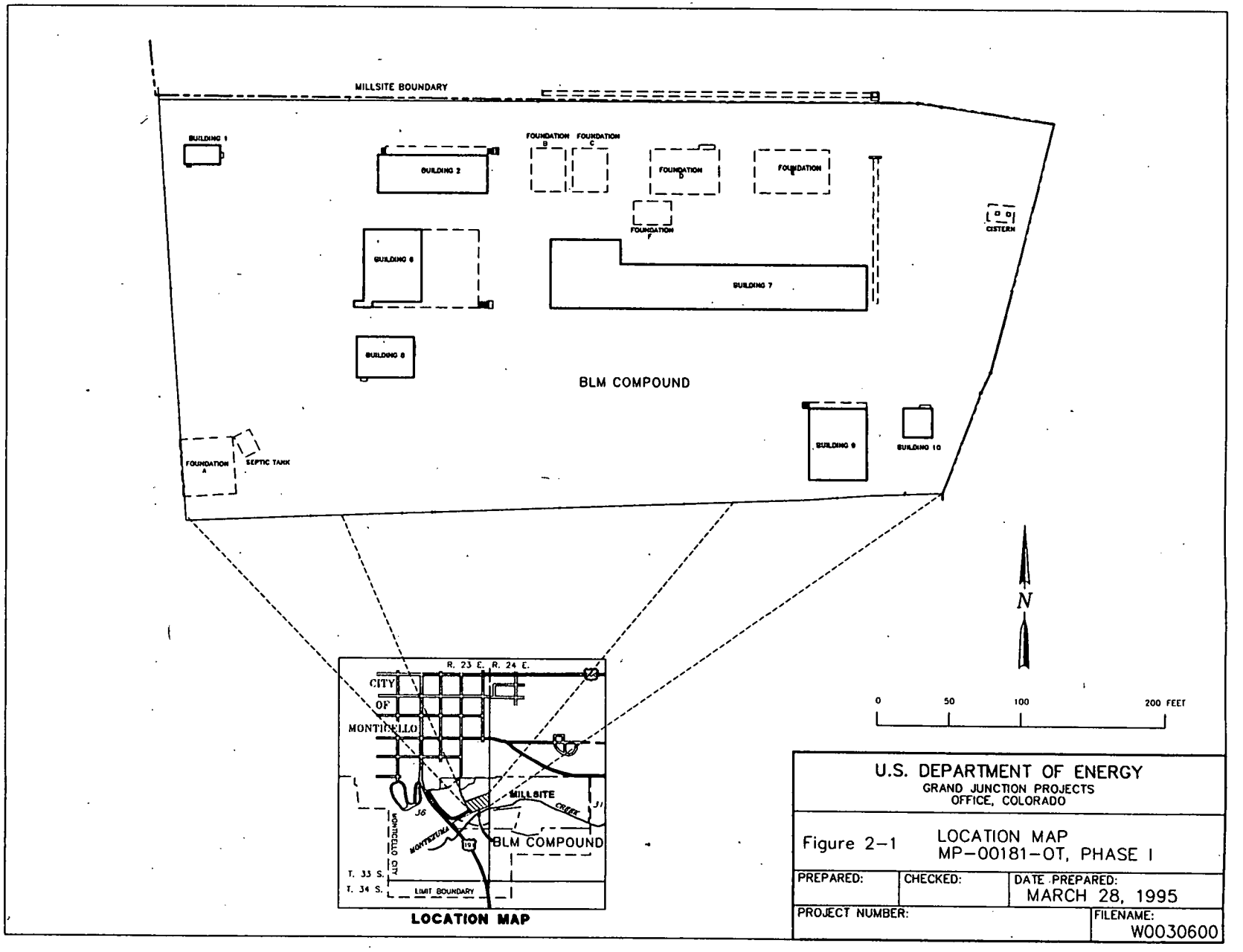
MILLSITE BOUNDARY
BUILDING 1
BUILDING 2
FOUNDATION B
FOUNDATION C
FOUNDATION D
FOUNDATION E
FOUNDATION F
CISTERN
BUILDING 6
BUILDING 7
BUILDING 8
BLM COMPOUND
FOUNDATION A
SEPTIC TANK
BUILDING 9
BUILDING 10
N
0
50
100
200 FEET
R. 23 E.
R. 24 E.
CITY OF MONTICELLO
MILLSITE
CREEK
36
31
MONTEZUMA
MONTICELLO
163
BLM COMPOUND
T. 33 S.
T. 34 S.
LIMIT BOUNDARY
LOCATION MAP
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION PROJECTS OFFICE, COLORADO
Figure 2-1
LOCATION MAP
MP-00181-OT, PHASE I
PREPARED:
CHECKED:
DATE PREPARED:
MARCH 28, 1995
PROJECT NUMBER:
FILENAME:
W0030600

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3.0 DESCRIPTION OF CURRENT AND PRIOR USE

Information regarding the historical use of this property was obtained through interviews with former millsite and BLM employees and long-time area residents. The primary contributor to this effort was Mr. Ken Christensen, who worked at the property from 1951 through 1990. Records of interviews with Mr. Christensen and Mr. Charles Bruner (another former mill employee) are included in Appendix A.

The Vanadium Corporation of America constructed the Monticello mill on unimproved land in 1942 for processing of vanadium and uranium ore. In 1948, the Atomic Energy Commission (AEC) purchased the mill and continued processing uranium ore until the mill closed in January 1960. Mill facilities that were located on this property reportedly included chemical and petroleum storage, vehicle maintenance and repair shops, carpentry and paint shops, an employee dressing room and shower, a first aid and guard station, a cookhouse, and miscellaneous storage buildings. A review of millsite maps, facility as-built drawings, photographs, and aerial photographs confirms that mill operations were conducted on this property. Figure 3-1 summarizes how each building was used by the AEC during mill operations.

The BLM occupied the property in 1962. BLM use included vehicle maintenance and repair, carpentry and paint shops, miscellaneous storage, and office space. BLM use of the buildings is summarized in Figure 3-2. Control of the property was transferred to DOE in 1990 for remedial action.

A feature-by-feature description of use follows.

Building 1
Both the AEC and BLM used Building 1 for storage of paint and miscellaneous items. Mr. Christensen did not recall any spills or releases at this building.

Building 2
During milling operations, Building 2 was used as a cookhouse, bunkhouse, warehouse, and office space. A crawlspace was used for storage of miscellaneous items, such as old appliances, tires, and fence materials. BLM used the building proper for miscellaneous storage. A small tank (approximately 300 gallons) is partly buried in an unfinished crawlspace beneath the building. Mr. Christensen was uncertain of how this tank was used, but felt that it was probably used to collect shower water.

Building 6
Building 6 was used as the main warehouse during mill operations. All supplies and equipment for daily operations were received and stored here. The BLM used this building as a cookhouse, bunkhouse, and for miscellaneous storage. Mr. Christensen did not recall any spills or releases at this building.

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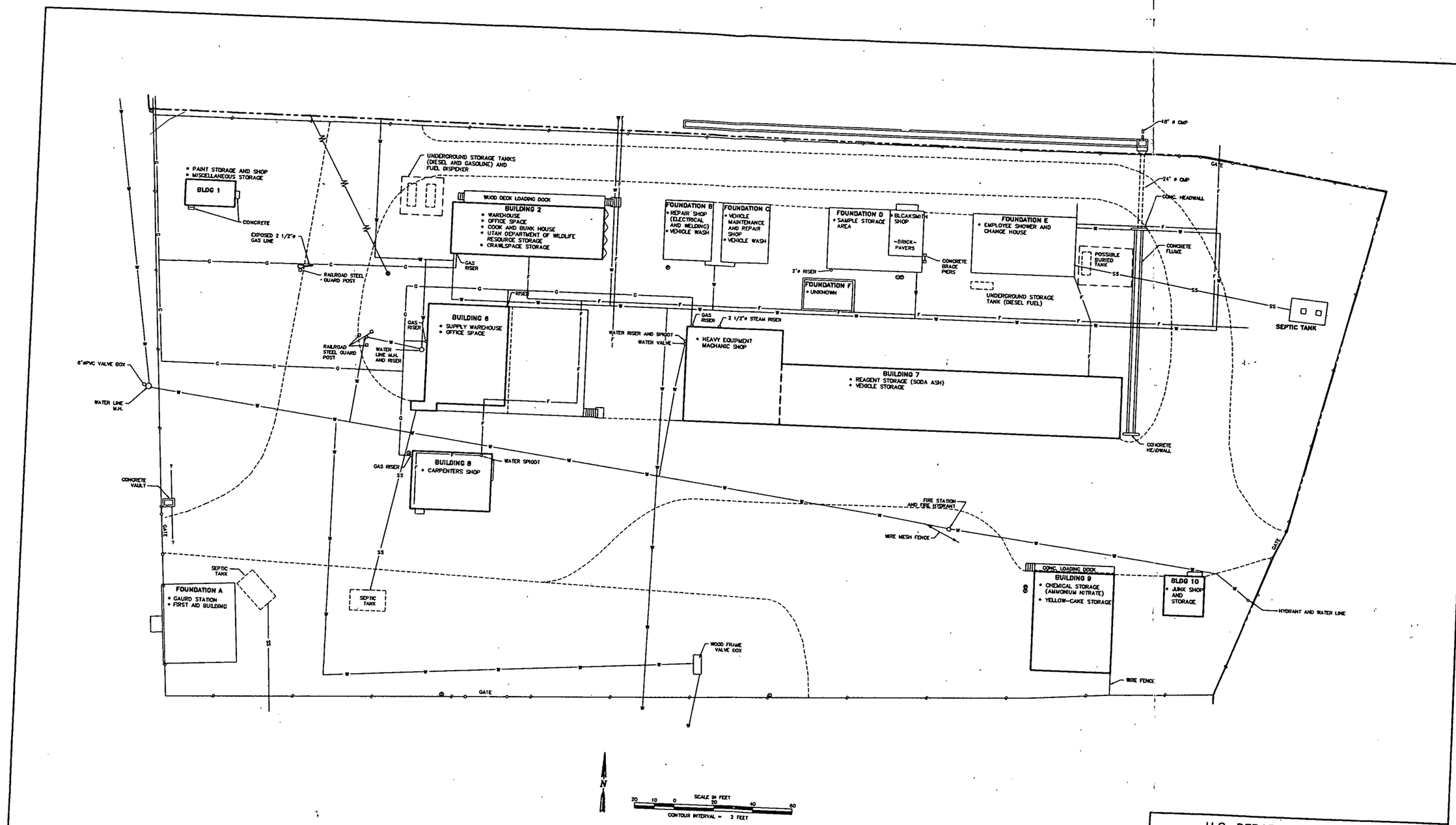

This drawing, prepared by Rust Geotech, Inc. for the Monticello Remedial Action Program, is for the sole use of the U.S. Department of Energy and its contractors. It is not a land survey plat or an improvement survey plat, and is not to be relied upon for the establishment of fence, building, or other future improvement lines by the private sector. The property lines shown on this map do not reflect an actual legal boundary survey.

U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION PROJECTS OFFICE, COLORADO

Figure 3-1. AEC ACTIVITY/USAGE MAP FOR MP-00181-OT, PHASE I

PREPARED:	CHECKED:	DATE PREPARED:

PROJECT NUMBER: MARCH 1, 1995
FILENAME: W0045200

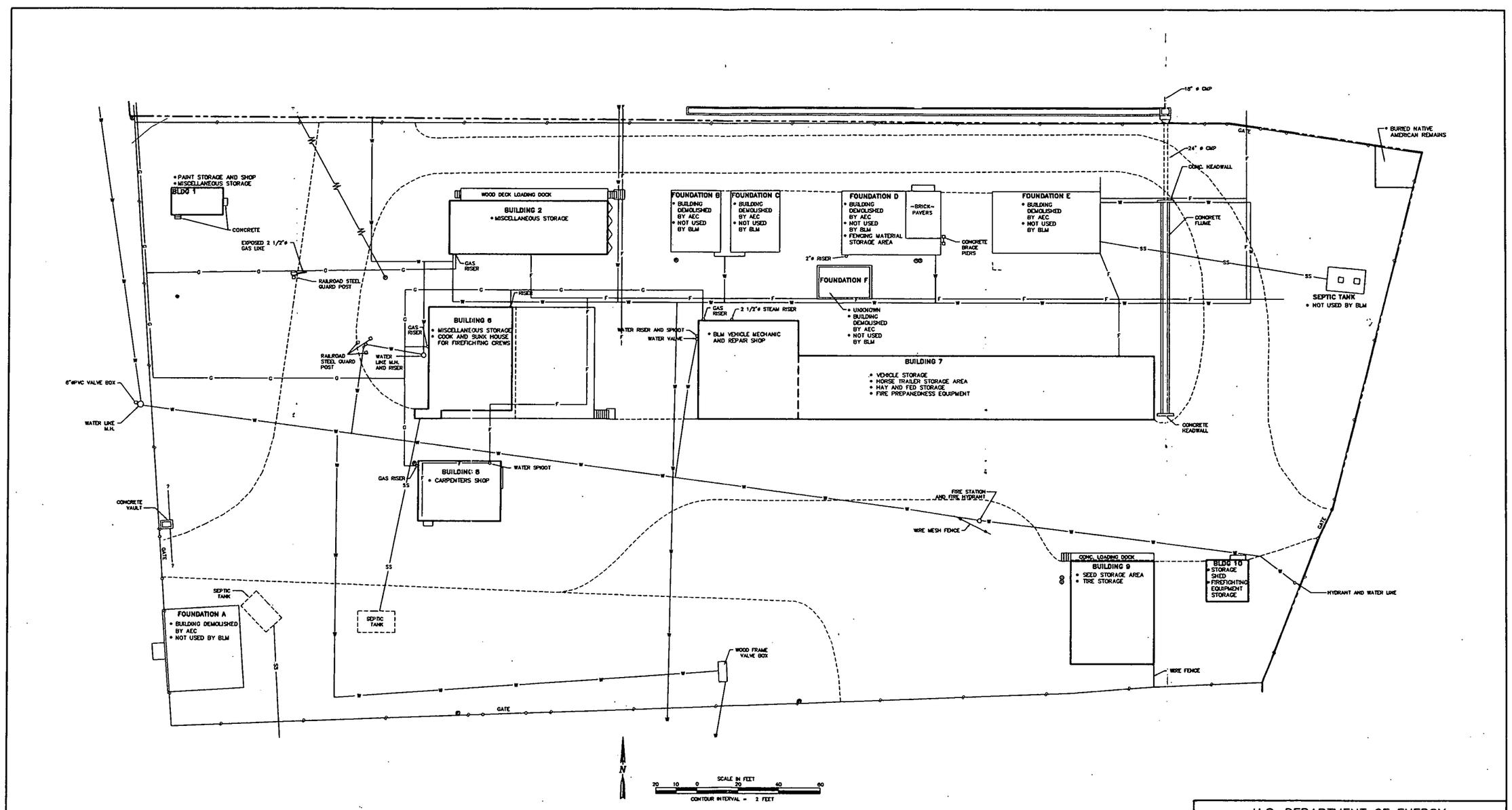

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Figure 3-2. BLM ACTIVITY/USAGE MAP FOR MP-00181-OT, PHASE I

PREPARED:	CHECKED:	DATE PREPARED:
PROJECT NUMBER: MARCH 1, 1995		FILENAME: W0045300

Building 7
The west side of Building 7 consists of several "high bays" which were used for vehicle maintenance and repair during mill operations and BLM occupancy. Both the BLM and mill used the east side of the building for vehicle storage. The central portion of the building was also used by the mill for chemical storage; soda ash in particular was mentioned. Mr. Christensen stated that solvents were not used or stored in this building and did not recall any spills or releases.

Building 8
Both the mill and the BLM used this building as a carpentry shop. Woodworking equipment and supplies were stored here.

Building 9
This building was used for chemical storage during mill operations. Ammonium nitrate and processed yellow cake were mentioned by Mr. Christensen as having been stored here. Mr. Christensen did not recall any spills or releases at this building. During the BLM occupation, seed and tires were stored here. Mr. Christensen stated that neither pesticides nor herbicides were stored or used here or elsewhere on this property during the BLM occupation.

Building 10
During mill operations, Building 10 was used for storage of plumbing supplies and other miscellaneous items. The BLM used this building for storage of fire fighting equipment.

Foundation A
The building at this site was used by the mill as a first aid and guard station. The building was demolished before BLM occupation; only the stemwall and slab remain.

Foundation B
During mill operations, this building was used as an electrical repair shop, a welding shop, and for vehicle washing. The building was demolished before BLM occupation; only the stemwall and slab remain.

Foundation C
The building at this site was used for vehicle maintenance, repair, and washing during mill operations. Mr. Christensen recalled that solvents were used here for degreasing, but indicated that waste oils and solvents were not disposed of at this building. The building was demolished before BLM occupation; only the stemwall and slab remain.

Foundation D
During mill operations, this building was used for sample storage and a blacksmith shop. The building was demolished before BLM occupation. The only remaining features are the stemwall and slab remain along with brick floor pavers in the northeast corner, where the blacksmith shop was located. Mr. Christensen reported that the concrete slab was used by the BLM as a storage area for fencing materials.

Foundation E
The building at this site was used as an employee dressing room and shower during mill operations. A waste water line extends from the shower area to a concrete tank east of the foundation. The building was demolished before BLM occupation; only the stemwall and slab remain.

Foundation F
The use of this former building is unknown. The building was demolished before BLM occupation; only the stemwall and slab remain.

Concrete Tank
The buried concrete tank at the east end of the property is connected to the former shower area in Foundation E. A partial concrete wall divides the tank and there is a manhole for each half. The tank is approximately six feet wide, six feet high, and ten feet long. At the time of the interview with Mr. Christensen, this tank contained four to five feet of liquid.

Abandoned Concrete Well
The abandoned well near the southern boundary of this property was used as a water supply well for mill operations. The details of its abandonment are unknown.

Concrete Diversion Ditch
The concrete-lined ditch east of Building 7 was used during mill operations to control stormwater runoff from the millsite upgradient from the BLM compound. It is believed that at one time a culvert led from the downgradient end of the ditch south to Montezuma Creek.

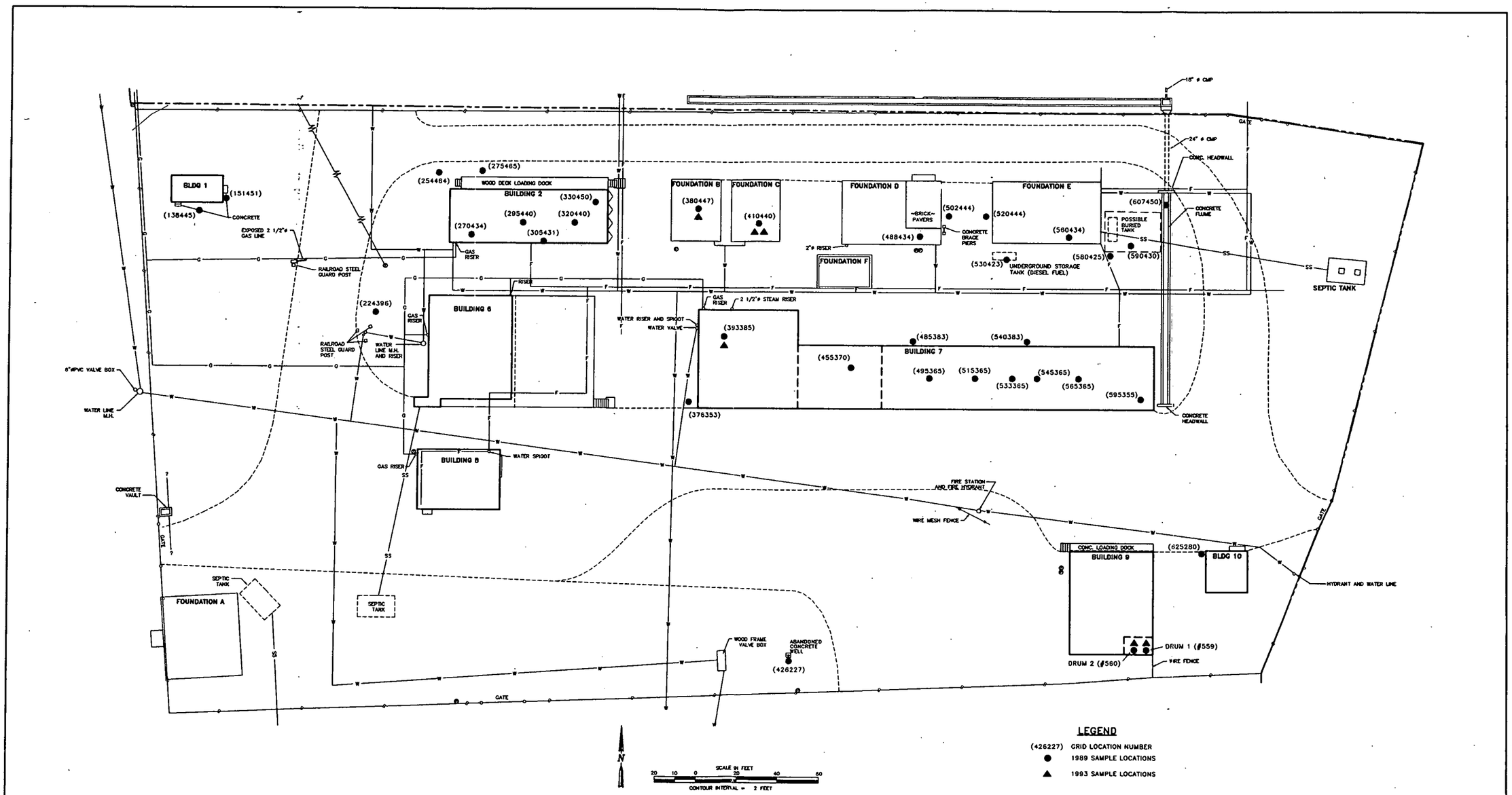
Drums 559 and 560
Mr. Christensen believed these drums contain fuel that was used in BLM helicopters. At the time that DOE took responsibility for the property, the drums were located on the cover of the concrete tank. Both drums were then moved to a more secure storage site in Building 9.

Petroleum USTs
Two petroleum USTs (one for gasoline, one for diesel) were located near the northwest corner of Building 2 during mill operations. Another diesel UST was located south of Foundation E. Mr. Christensen has no recollection of these tanks being removed. He also indicated that one more UST may have been located east of Foundation E.

4.0 SITE ASSESSMENT

The BLM Compound was evaluated for the possible presence of CERCLA hazardous substances other than radium-226. Physical inspections were conducted on June 28, 1989 and April 24, 1991 for visual indications of hazardous substance releases (e.g., discolored soil, stressed vegetation, apparent spills or leaks from containers). Samples were collected in two separate efforts, during the period September 12-21,1989 and again during November 15-19, 1993 (RUST, 1993). Each sample location was screened with a photoionization detector (PID) for the presence of volatile organic compounds (VOCs). Samples were submitted for VOC and/or semi-VOC analysis when PID readings exceeded 10 parts per million (ppm). Analysis was conducted by the U. S. Department of Energy Grand Junction Projects Office (DOE-GJPO) Analytical Laboratory in accordance with EPA standard methods. Sample collection activities are detailed in Appendices B and C.

The site assessment is summarized in Table 4-1. Analytical results are presented in Table 4-2 for those samples where one or more analytes were detected. Sample locations are shown in Figure 4-1.



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GRAND JUNCTION PROJECTS OFFICE, COLORADO

Figure 4-1. 1989 AND 1993 SAMPLE LOCATION MAP FOR MP-00181-OT, PHASE I

PREPARED:	CHECKED:	DATE PREPARED:
PROJECT NUMBER: MARCH 1, 1995		FILENAME: W0045700

Table 4-1. Summary of Site Investigation

Area	Investigative Technique	Rationale	Results
Building 1	Physical inspection; collection of one 0-6" sample of downslope soil and one 0-6" sample from discolored soil for PID screening and EP Toxicity metals analysis	Possible contamination of soil with paint	Observed a small area of discolored soil east of the building; no organic vapors or metals were detected in either sample
Building 2	Physical inspection; collection of five 0-6" soil samples in crawlspace for PID screening and EP Toxicity metals analysis[1]	Possible contamination of soil by releases from unknown stored materials	Four small areas of discolored soil were observed; several unlabeled empty drums were found; no organic vapors were detected; mercury was detected in one sample[1] (see Table 4-2)
Building 6	Physical inspection	Provide visual confirmation that no releases occurred at this building. (Hazardous substances not associated with past uses of building.)	No visual evidence of releases
Building 7	Physical inspection; collection of eight 0-6" soil samples for PID screening and analysis of VOCs, semi-VOCs, and EP Toxicity metals [2]	Possible contamination of soil by solvents, oil, or stored chemicals.	Areas of oil-stained soil were observed in the east end of the building; metals, organics, and PCBs were detected in valve pit sediments (see Table 4-2); no organic vapors or metals were detected in other samples[2]
Building 8	Physical inspection	Possible release of solvents or other materials associated with wood working or finishing	No visual evidence of releases
Building 9	Physical inspection	Possible releases from stored chemicals	No visual evidence of releases
Building 10	Physical inspection; collection of one 0-45" soil sample from a battery storage area for PID screening and EP Toxicity metals analysis	Provide visual confirmation that no releases occurred at this building. (Hazardous substances not associated with past uses of building.)	Damaged vehicle batteries found outside northwest corner of building; no visual evidence of releases; no organic vapors or metals detected

Table 4-1. Summary of Site Investigation (continued)

Area	Investigative Technique	Rationale	Results
Foundation A	Physical inspection	Provide visual confirmation that no releases occurred at this building. (Hazardous substances not associated with past use of building.)	No visual evidence of releases
Foundation B	Physical inspection; collection of one 0-6" soil sample from drain pit for PID screening and EP Toxicity metals analysis	Possible releases of solvents or automotive fluids	No visual evidence of releases; barium detected (see Table 4-2)
Foundation C	Physical inspection; collection of one 30-36" sediment sample from drain pit and one 15-24" soil sample from beneath concrete slab adjacent to pit for PID screening and analysis of VOCs, semi-VOCs, PCBs, and PPL metals	Possible releases of solvents or automotive fluids	Drain Pit Sediments: Observed discoloration, odor, and presence of organic vapors; detected VOCs, semi-VOCs, metals, and PCBs (see Table 4-2) Subfloor: No visual evidence of contamination; no organic vapors detected; semi-VOCs and metals detected (see Table 4-2)
Foundation D	Physical inspection; collection of one 0-6" sediment sample from drain pit and one 0-6" soil sample from area of discolored soil next to foundation for PID screening and EP Toxicity metals analysis	Possible releases of unknown hazardous substances	No visual evidence of contamination in drain pit; observed small area of discolored soil outside of east foundation wall; no organic vapors or metals detected in either sample
Foundation E	Physical inspection; collection of one 0-4" sediment sample from drain pit and one 0-18" soil sample from area of discolored soil next to foundation for PID screening and EP Toxicity metals analysis	Provide visual confirmation that no releases occurred at this building. (Hazardous substances not associated with past use of building.)	Observed discoloration in both drain pit sediment and in small area of soil outside the foundation west wall; no organic vapors or metals were detected in either sample
Foundation F	Physical inspection	Possible releases of unknown hazardous substances	No visual evidence of releases

Table 4-1. Summary of Site Investigation (continued)

Area	Investigative Technique	Rationale	Results
Concrete Tank	Physical inspection; collection of one 0-108" sample from downslope soil for PID screening and EP Toxicity metals analysis; collection of one sample of tank liquid for analysis of VOCs, semi-VOCs, PCBs, PPL metals, and gamma scan	Possible unknown hazardous substances in tank and possible releases from tank	Soil: No visual evidence of contamination; no organic vapors or metals detected; no visual evidence of release of tank contents Liquid: No sludges or multiple phases were observed; uranium-238 and a semi-VOC were detected (see Table 4-2)
Abandoned Concrete Well	Physical inspection; collection of one 0-72" sample of soil immediately downslope for PID screening and EP Toxicity metals analysis	Possible disposal of hazardous substances into well	No visual evidence of contamination; no organic vapors or metals detected
Concrete Diversion Ditch	Physical inspection; collection of one 0-3" sediment sample from bottom of north end for PID screening and EP Toxicity metals analysis	Possible contamination of ditch sediments by unknown hazardous substances	No visual evidence of contamination; no organic vapors or metals detected
Drum 559	Physical inspection; PID screening of headspace; collection of liquid sample for analysis of VOCs, semi-VOCs, PCBs, PPL metals, and gamma scan	Drum contents unknown at time of investigation	Greenish, single phase liquid; detected VOCs, semi-VOCs, metals, and radionuclides (see Table 4-2)
Drum 560	Physical inspection; PID screening of headspace; collection of liquid sample for analysis of VOCs, semi-VOCs, PCBs, PPL metals, and gamma scan	Drum contents unknown at time of investigation	Yellowish, single phase liquid; detected VOCs, semi-VOCs, and metals (see Table 4-2)
Petroleum USTs — northwest of Building 2	Physical inspection; geophysical investigation; collection of one 0-96" and one 0-120" soil samples from area where USTs are suspected for PID screening and EP Toxicity metals analysis	Possible release of petroleum from UST	No visual evidence of contamination; geophysical anomaly observed; no organic vapors or metals detected

Table 4-1. Summary of Site Investigation (continued)

Area	Investigative Technique	Rationale	Results
Petroleum UST — east of Foundation E	Physical inspection; geophysical investigation; collection of one 0-108" and one 0-144" soil samples from area where UST is suspected for PID screening and EP Toxicity metals analysis	Possible release of petroleum from UST	No visual evidence of contamination; geophysical anomaly observed; no organic vapors or metals detected
Petroleum UST — south of Foundation E	Physical inspection; geophysical investigation; collection of three 0-84" soil samples from area where UST is suspected for PID screening and EP Toxicity metals analysis	Possible release of petroleum from UST	No visual evidence of contamination; geophysical anomaly observed; no organic vapors or metals detected
Grounds	Physical inspection	Provide visual confirmation that no releases occurred in areas not mentioned above	No visual evidence of contamination

[1] One sample was collected in each of the four areas of discoloration; one sample where empty, unlabeled drums were found; and one sample from inside a wooden storage bin. The sample in which mercury was detected came from the storage bin.

[2] Six samples were collected from oil-stained areas; one sample from soil beneath concrete in the chemical storage area; and one from a valve pit.

Table 4–2. Summary of Hazardous Substances Detected in Samples Collected From the BLM Compound

Sample Location and Date	Sample Ticket No.	Analysis	Analyte Detected	Analytical Result	Risk-Based Concentrations[1]
Foundation B Floor Drain Pit (380447), 1989	MLA 532	EP-Toxicity Metals	Barium	2.2 mg/L	5500.0 mg/Kg
Foundation C Floor Drain Pit Sediments (410440), 1989	MLA 533	HSL VOCs	Vinyl Chloride	22.0 µg/Kg	0.34 mg/kg
			Methylene Chloride	2200.0 µg/Kg	85.0 mg/kg
			Acetone	1500.0 µg/Kg	7800.0 mg/Kg
			Carbon Disulfide	38.0 µg/Kg	7800.0 mg/Kg
			1,1-Dichloroethene	26.0 µg/Kg(J)	1.1 mg/Kg
			1,2-Dichloroethene (Total)	34.0 µg/Kg(J)	780.0 mg/Kg
			Chloroform	4600.0 µg/Kg	100.0 mg/Kg
			1,2-Dichloroethane	140.0 µg/Kg	7.0 mg/Kg
			2-Butanone	340.0 µg/Kg(J)	47000.0 mg/Kg
			cis-1,3-Dichloropropene	30.0 µg/Kg(J)	3.7 mg/Kg
			Trichloroethene	1200.0 µg/Kg	58.0 mg/Kg
			Benzene	86.0 µg/Kg	22.0 mg/Kg
			4-Methyl-2-Pentanone	990.0 µg/Kg	Not Available
			2-Hexanone	760.0 µg/Kg	Not Available
			Tetrachloroethene	210.0 µg/Kg	12.0 mg/Kg
			1,1,2,2 Tetrachloroethene	280.0 µg/Kg	3.2 mg/Kg
			Toluene	1300.0 µg/Kg	16000.0 mg/Kg
			Ethylbenzene	190.0 µg/Kg	7800.0 mg/Kg
			Total Xylenes	5800.0 µg/Kg	160000.0 mg/Kg
Foundation C Floor Drain Pit Sediments (410440), 1989	MLA 587	HSL VOCs	Methylene Chloride	35000.0 µg/Kg(J)	85.0 mg/Kg
			Acetone	49000.0 µg/Kg	7800.0 mg/Kg
			Chloroform	46000.0 µg/Kg	100.0 mg/Kg
			1,2 Dichloroethane	3900.0 µg/Kg(J)	7.0 mg/Kg
			2-Butanone	28000.0 µg/Kg(J)	47000.0 mg/Kg
			Trichloroethene	13000.0 µg/Kg(J)	58.0 mg/Kg
			4-Methyl-2-Pentanone	29000.0 µg/Kg(J)	NA
			Tetrachloroethene	6900.0 µg/Kg(J)	12.0 mg/Kg
			Toluene	19000.0 µg/Kg(J)	16000.0 mg/Kg
			Ethylbenzene	12000.0 µg/Kg(J)	7800.0 mg/Kg
			Total Xylenes	62000.0 µg/Kg	160000.0 mg/Kg
Foundation C Floor Drain Pit Sediments (410440), 1993	NBB 610	TCL VOCs	Vinyl Chloride	61.0 µg/Kg(J)	0.34 mg/Kg
			Methylene Chloride	7100.0 µg/Kg	85.0 mg/Kg
			Acetone	2600.0 µg/Kg	7800.0 mg/Kg
			1,1-Dichloroethene	110.0 µg/Kg	1.1 mg/Kg
			cis-1,2-Dichloroethene	23.0 µg/Kg(J)	780.0 mg/Kg
			Chloroform	17000.0 µg/Kg	100.0 mg/Kg
			1,2-Dichloroethane	390.0 µg/Kg	7.0 mg/Kg
			2-Butanone	250.0 µg/Kg	47000.0 mg/Kg
			Trichloroethene	6300.0 µg/Kg	58.0 mg/Kg
			Benzene	270.0 µg/Kg	22.0 mg/Kg
			Tetrachloroethene	6600.0 µg/Kg	12.0 mg/Kg
			Toluene	4000.0 µg/Kg	16000.0 mg/Kg
			Ethylbenzene	2400.0 µg/Kg	7800.0 mg/Kg
			M,P-Xylenes	19000.0 µg/Kg	16000.0 mg/Kg
			O-Xylene	11000.0 µg/Kg	16000.0 mg/Kg
		TCL semiVOCs	Naphthalene	25000.0 µg/Kg(J)	3100.0 mg/Kg
			2-Methylnaphthalene	45000.0 µg/Kg(J)	NA
			Acenaphthene	6000.0 µg/Kg(J)	4700.0 mg/Kg
			Dibenzofuran	5700.0 µg/Kg(J)	310.0 mg/Kg

Table 4-2. Summary of Hazardous Substances Detected in Samples Collected From the BLM Compound (Continued)

Sample Location and Date	Sample Ticket No.	Analysis	Analyte Detected	Analytical Result	Risk-Based Concentrations[1]
		PPL metals	Antimony	1.7 mg/Kg(J)	31.0 mg/kg
			Arsenic	33.6 mg/Kg	23.0 mg/kg
			Beryllium	0.6 mg/Kg(J)	0.15 mg/kg
			Cadmium	8.0 mg/Kg	39.0 mg/kg
			Chromium	33.6 mg/Kg	390.0 mg/kg
			Copper	724.0 mg/Kg	2900.0 mg/kg
			Lead	1850.0 mg/Kg	400.0 mg/kg[2]
			Mercury	0.9 mg/Kg	23.0 mg/kg
			Nickel	35.1 mg/Kg	1600.0 mg/kg
			Selenium	8.7 mg/Kg	390.0 mg/kg
			Thallium	0.9 mg/Kg(J)	6.3 mg/kg
			Zinc	581.0 mg/Kg	23000.0 mg/kg
		TCL PCBs	Aroclor-1248	3400.0 µg/Kg	10.0 mg/kg[3]
Foundation C Subfloor (410440), 1993	NBB 611	TCL semiVOCs	Di-n-Butylphthalate	130.0 µg/Kg(J)	7800.0 mg/Kg
			Butylbenzylphthalate	190.0 µg/Kg	16000.0 mg/Kg
			bis (2-Ethylhexyl)Phthalate	100.0 µg/Kg (J)	46.0 mg/Kg
		PPL metals	Arsenic	9.2 mg/Kg	23.0 mg/kg
			Beryllium	0.6 mg/Kg (J)	0.15 mg/kg
			Cadmium	0.3 mg/Kg (J)	39.0 mg/kg
			Chromium	8.7 mg/Kg	390.0 mg/kg
			Copper	21.3 mg/Kg	2900.0 mg/kg
			Lead	15.2 mg/Kg	400.0 mg/kg[2]
			Nickel	24.6 mg/Kg	1600.0 mg/kg
			Selenium	0.8 mg/Kg (J)	390.0 mg/kg
			Thallium	0.5 mg/Kg (J)	6.3 mg/kg
			Zinc	75.3 mg/Kg	23000.0 mg/kg
Bldg 2 Crawl Space (320440), 1989	MLA 562	EP-Toxicity	Mercury	0.0108 mg/L	23.0 mg/kg
Bldg 7 Valve Pit, 1993	NBB 608	TCL semiVOCs	bis (2-Ethylhexyl)Phthalate	1600.0 µg/Kg (J)	46.0 mg/kg
		PPL metals	Antimony	1.7 mg/Kg (J)	31.0 mg/kg
			Arsenic	8.9 mg/Kg	23.0 mg/kg
			Beryllium	0.5 mg/Kg (J)	0.15 mg/kg
			Cadmium	5.7 mg/Kg	39.0 mg/kg
			Chromium	59.2 mg/Kg	390.0 mg/kg
			Copper	277.0 mg/Kg	2900.0 mg/Kg
			Lead	215.0 mg/Kg	400.0 mg/kg[2]
			Mercury	0.2 mg/Kg	23.0 mg/kg
			Nickel	59.4 mg/Kg	1600.0 mg/kg
			Selenium	1.0 mg/Kg (J)	390.0 mg/kg
			Thallium	0.4 mg/Kg (J)	6.3 mg/kg
			Zinc	1020.0 mg/Kg	23000.0 mg/kg
		TCL PCBs	Aroclor-1254	190.0 µg/Kg	10.0 mg/kg[3]
Drum 559 (692418), 1989	MLA 589	HSL semi-VOCs	N-Nitrosodiphenylamine	25.0 µg/L (J)	130.0 mg/kg
Drum 559 (Stored in Bldg 9), 1993	NBB 605	TCL VOCs	Acetone	1500.0 µg/L	7800.0 mg/kg
			2-Butanone	230.0 µg/L	47000.0 mg/kg

Table 4-2. Summary of Hazardous Substances Detected in Samples Collected From the BLM Compound (Continued)

Sample Location and Date	Sample Ticket No.	Analysis	Analyte Detected	Analytical Result	Risk-Based Concentrations[1]
Drum 559 (Con't). 1993	NBB 605 (Con't)	PPL metals	Antimony	1820.0 µg/L (J)	31.0 mg/kg
			Arsenic	790.0 µg/L	23.0 mg/kg
			Beryllium	4720.0 µg/L	0.15 mg/kg
			Cadmium	23600.0 µg/L	39.0 mg./kg
			Chromium	824000.0 µg/L	390.0 mg/kg
			Copper	178.0 µg/L	2900.0 mg/kg
			Lead	319.0 µg/L	400.0 mg/kg[2]
			Nickel	103000.0 µg/L	1600.0 mg/kg
			Thanllium	586.0 µg/L	6.3 mg/kg
			Zinc	439000.0 µg/L	23000.0 mg/kg
		Gamma Scan	$Radium_{226}$	132.6 pCi/0.5 L[4]	NA
			$Uranium_{235}$	669.8 pCi/0.5 L[4]	NA
			$Uranium_{238}$	25065.0 pCi/0.5 L[4]	NA
Drum 559 Duplicate (Stored in Bldg 9), 1993	NBB 606	PPL metals	Antimony	2030.0 µg/L (J)	NA
			Arsenic	750.0 µg/L	NA
			Beryllium	2270.0 µg/L	NA
			Cadmium	23900.0 µg/L	NA
			Chromium	579000.0 µg/L	NA
			Copper	187.0 µg/L	NA
			Lead	197.0 µg/L (J)	NA
			Nickel	87700.0 µg/L	NA
			Thallium	691.0 µg/L	NA
			Zinc	473000.0 µg/L	NA
Drum 560 (692418), 1989	MLA 590	HSL semi-VOCs	2-Chlorophenol	140.0 µg/L (J)	NA
			Benzyl Alcohol	28.0 µg/L (J)	NA
			Benzoic Acid	140.0 µg/L (J)	NA
			2,4-Dichlorophenol	10000.0 µg/L	NA
			Naphthalene	180.0 µg/L	NA
			2-Methylnaphthalene	270.0 µg/L	NA
			2,4,6-Trichlorophenol	94.0 µg/L (J)	NA
			Acenapthylene	30.0 µg/L (J)	NA
			Fluorene	47.0 µg/L (J)	NA
			Anthracene	40.0 µg/L (J)	NA
Drum 560 (Stored in Bldg 9) 1993	NBB 607	TCL VOCs	Acetone	610000.0 µg/L	NA
			2-Butanone	1500000.0 µg/L	NA
		PPL metals	Antimony	1.5 µg/L (J)	NA
			Cadmium	14.1 µg/L	NA
			Chromium	19.8 µg/L	NA
			Copper	17.2 µg/L (J)	NA
			Lead	34.6 µg/L	NA
			Nickel	47.3 µg/L	NA
			Zinc	6140.0 µg/L	NA
Concrete Cistern Contents 1993	NBB 602	TCL semi-VOCs	bis (2-Ethylhexyl) Phthalate	5.0 µg/L (J)	NA
		Gamma Scan	$Uranium_{238}$	2783.3 pCi/0.5 L[4]	NA
Concrete Cistern Contents 1993 (Duplicate) 1993	NBB 603	TCL semi-VOCs	bis (2-Ethylhexyl) Phthalate	3.0 µg/L (J)	NA
Equipment Blank 1989	MLA 531	HSL VOCs	Methylene Chloride	3.0 µg/L (J)	NA
			2-Butanone	3.0 µg/L (J)	NA
			Toluene	7.0 µg/L (J)	NA

Table 4-2. Summary of Hazardous Substances Detected in Samples Collected From the BLM Compound (Continued)

Sample Location and Date	Sample Ticket No.	Analysis	Analyte Detected	Analytical Result	Risk-Based Concentrations[1]
Trip Blank 1989	MLA 585	HSL VOCS	Methylene Chloride Acetone 2-Butanone Toluene	2.0 µg/L (J) 1.0 µg/L (J) 4.0 µg/L (J) 10.0 µg/L (J)	NA NA NA NA
Equipment Blank 1989	MLA 586	HSL VOCs	Methylene Chloride Acetone 2-Butanone 2-Hexanone Toluene	5.0 µg/L (J) 10.0 µg/L 9.0 µg/L (J) 3.0 µg/L (J) 2.0 µg/L (J)	NA NA NA NA NA
Equipment Blank 1989	MLA 591	HSL VOCs	Methylene Chloride Acetone 2-Butanone Toluene	5.0 µg/L (J) 7.0 µg/L (J) 7.0 µg/L (J) 2.0 µg/L (J)	NA NA NA NA
Trip Blank 1993	NBB 601	TCL VOCs	Chloroform	14.0 µg/L	NA
Trip Blank 1993	NBB 604	TCL VOCs	Methylene Chloride Chloroform	1.0 µg/L (J) 2.0 µg/L (J)	NA NA
Trip Blank 1993	NBB 609	TCL VOCs	Chloroform	3.0 µg/L (J)	NA
Equipment Blank 1993	NBB 612	TCL VOCs	Chloroform	10.0 µg/L	NA
		TCL semi VOCs	bis (2-Ethylhexyl)Phthalate	8.0 µg/L (J)	NA
		PPL metals	Lead Thallium	1.1 µg/L (J) 1.0 µg/L (J)	NA NA

[1]EPA, 1994a.
[2]EPA, 1994b
[3]40 CFR 761.125(c)(4)
[4]Sample result was obtained from 500 ml of sample volume.
(J) This data qualifier indicates an estimated value. This qualifier is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria, but the result is less than the sample (or contract required) quantitation limit, and greater than zero.

5.0 INTERPRETATION AND RECOMMENDATIONS

The locations examined in Section 4.0 all lie in areas of radiologically contaminated soil or in structures that are planned for disposal in the repository. Two principal questions are considered in this section. The first is whether materials contaminated with CERCLA hazardous substances other than radium-226 meet the repository Waste Acceptance Criteria (WAC) described in the *Monticello Remedial Action Project Special Waste Management Plan for the Monticello Mill Tailings Site and Vicinity Properties* (DOE-GJPO, May 1995).

The second question is whether CERCLA hazardous substances are present at levels that warrant verification sampling following removal of all radiologically contaminated materials. Generally, the presence of CERCLA hazardous substances at levels exceeding risk-based concentrations will trigger the need for verification sampling. Verification samples will be analyzed for hazardous substances that can reasonably be expected to provide a significant contribution to the cumulative risk or hazard index. Risk-based concentrations for residential soil published by EPA Region III (EPA, 1994a) will be used as a guide in this determination.

On the basis of information presented in Sections 3.0 and 4.0, the following locations warrant no further investigation or concern: Buildings 6, 8, 9, and adjacent soils; Foundations A, F, and adjacent soils; and the grounds in general. Neither reports of past use nor visual inspections gave any indication of the presence of hazardous substances in these locations. It is recommended that soil and debris from these locations be moved to the repository without further consideration of non-radiological hazardous substances.

Soil samples were collected in certain other locations, typically because of discoloration. Among these locations were several areas where no VOCs were detected by field screening and no metals were detected by laboratory analysis. These areas were: Buildings 1, 10, and adjacent soils; Foundations D, E, and adjacent soils; sediment in the concrete diversion ditch; and the soil adjacent to the abandoned well. It is recommended that soil and debris from these locations be moved to the repository without further consideration of non-radiological hazardous substances.

The remaining locations will be discussed in more detail: Buildings 2 and 7; Foundations B and C; water in the concrete tank; Drums 559 and 560; and the petroleum USTs.

Building 2

Past uses of the building proper do not suggest the presence of hazardous substances, and no visual indications of hazardous substances were observed during the physical inspection. However, small areas of discolored soil were identified in the crawlspace, where miscellaneous items have been stored. No VOCs (field screening) or leachable metals (laboratory analysis) were detected in four of the five samples collected from soil in the crawlspace floor.

Leachable mercury was measured at 0.0108 mg/L by the EP Toxicity test in the fourth sample. It is uncertain whether the total mercury concentration exceeds the risk-based

concentration of 23 mg/kg (EPA 1994). No free, liquid mercury was observed in the sample. This contaminated soil meets the WAC and is recommended for disposal in the repository. Following removal of all radiologically contaminated material at this location, verification samples will be analyzed for total mercury to confirm that the risk-based concentration is not exceeded.

The contents of the small partly buried tank are unknown. It is recommended that the contents (if any) be characterized at the time of excavation in order to determine compatibility with the repository WAC and the need for verification sampling.

Building 7

Sediment in the valve pit is contaminated with several metals, a phthalate, and Arochlor 1254. Only beryllium exceeds its risk-based concentration. This however is an estimated value, as the analytical result was less than the sample quantitation limit, but greater than zero. Arsenic, cadmium, chromium, and lead are within one order of magnitude of their risk-based concentrations, while the phthalate is present at a level less than 4% of its risk-based concentration. Arochlor 1245 was present at 0.19mg/kg, less than 2% of the cleanup standard for PCB contaminated soils in areas of unrestricted access (40 CFR 761.25(c)(4)). This contaminated sediment meets the WAC and is recommended for disposal in the repository. Following removal of the sediment, drain pit, and any radiologically contaminated material below the drain pit, verification sampling will be conducted to confirm that metals are less than risk-based concentrations.

Foundation B

As described in Section 3.0, Foundation B was never used by the BLM and, as a result, is by-product material (and therefore is not a hazardous waste). Leachable barium was measured at 2.2 mg/L by the EP Toxicity test in a sediment sample from the drain pit. It is uncertain whether the total barium concentration exceeds the risk-based concentration of 5500 mg/kg. However, the contaminated sediment appears to meet the WAC and is recommended for disposal in the repository. Following removal of the sediment, drain pit, and any radiologically contaminated material below the drain pit, verification sampling will be conducted to confirm that total barium is less than 5500 mg/kg.

Foundation C

As described in Section 3.D, Foundation C was never used by the BLM and, as a result, is by-product material (and therefore is not a hazardous waste). Arochlor 1248 and numerous VOCs, semi-VOCs, and metals were detected in drain pit sediment. Lead, arsenic, and beryllium exceed risk-based concentrations. Each of the VOCs and semi-VOCs were present at levels two to three orders of magnitude below risk-based concentrations and will not be considered further. Arochlor 1248 was present at 3.4 mg/kg, one-third the cleanup standard for PCB contaminated soils in areas of unrestricted access (40 CFR 761.25(c)(4)). The contaminated sediment meets the WAC and is recommended for disposal in the repository. Following removal of the sediment, drain pit, and any radiologically contaminated material below the drain pit, verification sampling will be conducted to confirm that PCBs and metals do not exceed risk-based concentrations.

Phthalates and metals were detected in soil beneath the concrete slab adjacent to the drain pit. Beryllium was the only analyte to exceed its risk-based concentration. Among other metals detected, only arsenic was within one order of magnitude of its risk-based concentration. Levels of the three phthalates detected were all two to four orders of magnitude less than risk-based concentrations. This contaminated soil meets the WAC and is recommended for disposal in the repository. Following removal of all radiologically contaminated soil from beneath this area of the foundation, verification samples will be collected and analyzed for total metals to confirm that risk-based concentrations are not exceeded.

Concrete Tank

Bis(2ethyl-hexyl)phthalate was detected in two samples of tank water at an average concentration of 4.0 μg/L, below its risk-based concentration of 5.0 μg/L. Uranium-238 was detected in one sample at a concentration of 2783.3 pCi/0.5 L (5567 pCi/L). The concrete tank contains approximately 2000 gallons of radiologically contaminated water with a uranium-238 concentration of 5567 pCi/L. Assuming that the uranium-238 is in equilibrium with uranium-234, the uranium-238 concentration of 5567 pCi/L is equivalent to 16.7 mg/L uranium-238, similar to the concentration of groundwater on the Millsite, which ranges from 0.2 to 12.6 mg/L. DOE will manage the contaminated water by placement of this water in Retention Pond 3 on the Millsite. The 2000 gallons in the concrete tank, with a total uranium concentration of approximately 17 mg/L, will be added to at least 1 million gallons of pond water, with a total uranium concentration of 0.25 mg/L. The concentration of total uranium in Pond 3 after the addition of the tank water will be approximately 0.28 mg/L; the plant is designed to treat an influent of 1.5 mg/L and meet the discharge criteria for total uranium and alpha. The total uranium concentration of the pond water after water treatment will be approximately 0.01 mg/L, well below the 30-day water treatment effluent limit of 2 mg/L total uranium and the maximum effluent limit of 4 mg/L total uranium.

Drums 559 and 560

Based on an interview with Mr. Ken Christensen, one or both of these drums may contain helicopter fuel that was used in BLM helicopters. Although, these drums may contain a petroleum based product, the contents of Drum 559 are also radiologically contaminated. Currently, both drums are temporarily stored in Building 9 at the BLM Compound. Demolition of all structures at the BLM Compound (including Building 9) is scheduled to begin in the spring of 1995. It is recommended that both drums be placed within overpacks and be moved from their current storage location and placed temporarily inside a secondary containment structure which will be located within the designated temporary hazardous substance stockpile area on the BLM Compound. Both drums will be temporarily stored at this location until they are ultimately disposed. It is recommended that the drums and their contents be treated to meet the repository WAC and disposed within the repository according to the requirements of the *Monticello Remedial Action Project Special Waste Management Plan for the Monticello Mill Tailings Site and Vicinity Properties* (DOE-GJPO, May 1995). The DOE-GJPO will obtain concurrence from the U.S. EPA and the State of Utah prior to the disposal of the contents of drums 559 and 560.

Petroleum USTs

No organic vapors or leachable metals were detected in soil from areas where petroleum USTs are suspected or known. Petroleum contaminated soil encountered during excavation of radiologically contaminated material should be evaluated for its potential effects on the repository. Windrowing or other treatment may be appropriate before disposal. Any USTs that are encountered will be closed in accordance with the Utah Underground Storage Tank Regulations (USTR) R311-204 through R311-205, with the exception of R311-204-3(1) and (2). The tanks will not be labelled after being pulled from the ground, as required in R311-204-3(1) and (2), since they will be cut up and disposed on-site rather than being transported for disposal.

Any indications of past or present USTs encountered during excavation will trigger verification sampling. Verification samples will be collected after all radiologically contaminated soil is removed. The samples will be analyzed for total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN). If TPH or BTEXN are detected, site-specific cleanup standards must be determined in accordance with USTR R311-211-3.

6.0 References

DOE-GJPO, 1993. *Sampling and Analysis Plan for Regulated Waste Characterization of Bureau of Land Management Compound Peripheral Property MP-00181-OT, Phase I*, Grand Junction Projects Office, Grand Junction, Colorado.

DOE-GJPO, 1995. *Monticello Remedial Action Project Special Waste Management Plan for the Monticello Mill Tailings Site and Vicinity Properties*, Grand Junction Projects Office, Grand Junction, Colorado.

Rust Geotech, (continually updated). *Environmental Procedures Catalog* (Manual 116), U.S. Department of Energy, Grand Junction Projects Office, Grand Junction, Colorado.

U.S. Environmental Protection Agency (EPA), 1994. *Risk-Based Concentration Table, Third Quarter 1994*, Region III, Philadelphia, Pennsylvania.

U.S. Environmental Protection Agency (EPA), 1994. *Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities*, (Directive #9355.4-12), Office of Solid Waste and Emergency Response, Washington, D.C.

APPENDIX A
Interview Notes

Meeting/Telephone Conference Record

___Telephone Conference __X___ Meeting _____Other (specify) _____
Date: November 8, 1994 **Property Address:** Monticello Mill Tailings Site
Time: 3:00 p.m. - 4:20 p.m. **DOE ID Number:** MP-00181-OT, Phase I (Former BLM Compound)

Parties (list all participants):

Name	Company/Agency	Telephone Number/Extension
Mr. Ken Christensen	U.S. Bureau of Land Management	(801) 587-2141
Mike Gardner	RUST Geotech Inc., Environmental Compliance	(303) 248-6031

This Record Prepared By: Mike Gardner **Date:** December 22, 1994

Subject: AEC and BLM activities at the former BLM Compound (MP-00181-OT, Phase I)

The purpose of this Record of Meeting is to document an interview between Mr. Ken Christensen (BLM) and Mike Gardner (Geotech) on November 8, 1994. Mr. Ken Christensen began working at the millsite in approximately 1951 and remained employed there until the millsite was permanently closed in 1962. Mr. Christensen went to work for the BLM the same year that the millsite closed down. A portion of the millsite (now referred to as the BLM Compound), was transferred to the BLM in 1962. Mr. Christensen has been continuously employed with the BLM since 1962, and is planning to retire in the spring of 1995. Having been employed by both the AEC and the BLM for over 43 years, and being a lifetime resident of Monticello, Mr. Christensen is thoroughly knowledgeable of the activities that were conducted by both the AEC and the BLM at the area now known as the BLM Compound. The purpose of the interview with Mr. Christensen was to identify and document specific activities that were conducted by the AEC, and those that were conducted by the BLM. This information is critical in determining how hazardous substances and waste materials identified at the BLM compound will be managed and ultimately disposed. The following summary describes the activities and operations that were conducted at each of the buildings at the BLM Compound, first by the AEC and then by the BLM.

AEC ACTIVITIES: 1942 TO 1962

Foundation A: This building once used by the AEC as a guard station and first aid building. To the best of Mr. Christensen's knowledge, hazardous chemicals and/or substances were not used by the AEC at this location. This building was demolished after the millsite was closed, and prior to BLM occupancy of the BLM Compound. A concrete foundation (stemwall and floor slab) remains.

Foundation B: This building was originally used an electrical repair and welding shop. The building was later used as a vehicle wash facility. This building was demolished after the millsite was closed, and prior to BLM occupancy of the BLM Compound. A concrete foundation (stemwall and floor slab) remains. Based on the known activities conducted by the AEC at this building, and to the best of Mr. Christensen's recollection, hazardous chemicals and/or substances were not used or stored at this location.

Foundation C: This building was used by the AEC as a vehicle maintenance, repair shop (i.e., garage), and washing facility. Mr. Christensen indicated that this building was used only for routine vehicle service and maintenance, and on occasion, various solvents were used for degreasing purposes. Mr. Christensen, however, did not recall the exact type of solvents that were used, nor the concentrations of the specific chemical constituents of the solvents. Mr. Christensen indicated that this facility was not used for disposal of waste oils,

Foundation C (cont.): motor fluids, spent solvents, etc. This building was demolished after the millsite was closed, and prior to BLM occupancy of the BLM Compound. A concrete foundation (stemwall and floor slab) remains.

Foundation D: This building was used by the AEC as a sample storage area, and as a blacksmith shop. This building was demolished after the millsite was closed, and prior to BLM occupancy of the BLM Compound. A concrete foundation (stemwall and floor slab) remains. The blacksmith shop was located in the northeast portion of the building where brick floor pavers still remain. Based on the known activities conducted by the AEC at this building, and to the best of Mr. Christensen's recollection, hazardous chemicals and/or substances were not used or stored at this location.

Foundation E: This building was used as an employee change house and showering facility. A waste water line from the shower area extends from the foundation eastward to a concrete septic/waste water tank. Based on the known activities conducted by the AEC at this building, chemicals were not known to have been stored or used at this location. This building was demolished after the millsite was closed and prior to BLM occupancy. A concrete foundation (stemwall and floor slab) remains. Mr. Christensen stated that an underground storage tank (UST) containing diesel fuel was located somewhere south of the foundation. Mr. Christensen indicated that the fuel was pumped from the tank with a hand pump. Mr. Christensen, however, did not recall the size of the UST, nor whether or not it was ever removed. To the best of Mr. Christensen's knowledge, hazardous chemicals and/or substances were not used or stored at this location.

Foundation F: Mr. Christensen does not recall what this structure was used for. This structure was demolished after the millsite was closed, and prior to BLM occupancy of the BLM Compound. A concrete stemwall remains. Based on a physical inspection of this structure, no utility lines (water supply, waste lines, etc.) were observed. Additionally, there is no physical or historical evidence which suggests that hazardous substances are associated with this building. To the best of Mr. Christensen's recollection, hazardous chemicals and/or substances were not used or stored at this location.

Concrete Septic Tank: Located near the eastern boundary of the BLM Compound, Mr. Christensen indicated that this tank received the waste water from the shower facility (Foundation E). The concrete septic tank appears to be full of water; no sludges or phase separations of the contents of the tank were noted. There is no physical or historical evidence which suggests that hazardous substances are associated with this structure. To the best of Mr. Christensen's recollection, hazardous chemicals and/or substances were not used or stored at this location.

Building 1: This structure was used by the AEC as a paint shop and storage shed for paint and associated materials (e.g., thinners, varnishes, lacquers, etc.). According to Mr. Christensen, this structure was also periodically used for miscellaneous storage. Mr. Christensen did not recall any spills or releases of materials that were used or stored in this building.

Building 2: This building was a multi-purpose building. The AEC uses of this building included office space, warehouse, cook house, and tool storage. Mr. Christensen stated that this building was constructed in 1942. Mr. Christensen also stated that prisoners from the Utah State Penitentiary were used to demolish the old resin-in-pulp (RIP) plant that was located on the hillside north the BLM Compound. Building 2 was used as a bunk house and showering facility for the prisoners for the duration of the demolition activities. The crawl space of Building 2 is full of miscellaneous items such as old appliances (stoves, refrigerators, air conditioners, etc.), old tires, fencing material, etc. When Mr. Christensen was asked about the origin of these materials stored in the crawlspace, he recollected that the AEC allowed the Utah Department of Wildlife Resources (DWR) to store confiscated game meat which had been illegally taken by hunters, in refrigerators and freezers located in the crawl space. Mr. Christensen indicated that all other materials were left behind by the AEC, as the BLM never used the crawl space for storage or any other purpose. Mr. Christensen was also asked about the origin of a one-gallon clear glass container that was discovered in the crawl space during the original radiological assessment of the property. The container appears to be full of an unknown, clear liquid, and resembles an acid/chemical reagent container. Mr. Christensen again indicated that, to the best of his knowledge, the BLM never used any such chemicals/materials, and therefore, the container must have been left behind by the AEC. Mr. Christensen was also asked about the probable use/origin of a partially buried, relatively small tank (approximately 300 gallons) that was noted in the crawl space. Mr. Christensen was uncertain as to the use/origin of the tank; however, based on the location of the tank within the crawlspace, he did not believe that the tank was used for petroleum or chemical storage. Mr. Christensen suggested that the tank was perhaps used to collect waste water from the showers located inside the building. Mr. Christensen also indicated that the AEC installed and used two USTs containing gasoline and diesel fuel, and a dispenser island. The USTs were located off the northwest corner of the building. Mr. Christensen,

Building 2 (cont.): however, did not recall the exact size of the tanks, nor whether or not they were ever removed. Finally, Mr. Christensen was asked about any explosives which were rumored to have been stored in Building 2. Mr. Christensen replied, that the only explosives that he was aware of on the entire millsite, was a small tin box of blasting caps which he personally removed from the building prior to closure of the millsite. No other explosives are known to exist at the millsite. To the best of Mr. Christensen's recollection, hazardous chemicals and/or substances were not used or stored at this location. The discovery of the one-gallon container of unknown liquid; however, indicates that the AEC may have stored excess, unused, or waste chemicals in the crawlspace, and it is possible that other such materials may be encountered during the remediation of this structure.

Building 6: This building was used as both office space, and as the main warehouse for the millsite. When asked what type of materials were warehoused in this building, Mr. Christensen replied that all supplies (tools, plumbing and electrical supplies, office supplies, equipment and parts, automotive supplies, chemicals, etc.) necessary for the day-to-day millsite operations were received and/or stored here. Mr. Christensen did not recall any spills or releases of chemicals or materials that were stored in this building.

Building 7: The west side of Building 7 consists of several "high bays," which were used as a mechanic and repair shop for heavy equipment (e.g., loaders, bulldozers, cats, large trucks, etc.) used on the millsite. Mr. Christensen indicated that the portion of Building 7 located east of the "high bays" was used as vehicle storage and as a reagent storage area. Specifically, Soda Ash, which was used as a flocculent in the milling process, was stored in 100 pound bags in this portion of Building 7. Mr. Christensen did not recall any spills or releases of petroleum from vehicles/equipment, or chemicals/materials that were used and/or stored in this building.

Building 8: This building was used as a carpenter shop by the AEC. Wood working equipment, materials, and supplies were stored in this building. Mr. Christensen did not recall any spills or releases of chemicals or materials that were stored in this building.

Building 9: According to Mr. Christensen, this building was used exclusively for chemical storage. Ammonium nitrate which was also used in the milling process, was stored at this location. Processed yellow cake was also periodically stored in this building. Mr. Christensen indicated that when the millsite closed, all excess chemicals stored in this building, were sent to the Grand Junction Office. Mr. Christensen did not recall any spills or releases of chemicals or materials that were stored in this building.

Building 10: The AEC used this building as a storage shed for miscellaneous items. Mr. Christensen referred to this building as the "junk shop" where various items such as plumbing supplies, pipe, and fittings were stored out of the weather. According to Mr. Christensen, the AEC did not store or use hazardous chemicals or substances in this building.

BLM ACTIVITIES: 1962 TO 1990

Foundation A: This structure was demolished by the AEC, and was never used by the BLM. Mr. Christensen also stated that hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Foundation B: This structure was demolished by the AEC, and was never used by the BLM. Mr. Christensen also stated that hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Foundation C: This structure was demolished by the AEC, and was never used by the BLM. Mr. Christensen also stated that hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Foundation D: This structure was demolished by the AEC. According to Mr. Christensen, the BLM did use the concrete slab of this foundation as a storage area for fencing materials (i.e., steel posts, wire, fencing fabric, etc.). Hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Foundation E: This structure was demolished by the AEC, and was never used by the BLM. Mr. Christensen also stated that hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Foundation F: This structure was demolished by the AEC, and was never used by the BLM. Mr. Christensen also stated that hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Concrete Septic Tank: This structure was never used by the BLM. Mr. Christensen also stated that hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Building 1: This structure was also used by the BLM as a paint shop and paint storage shed. Mr. Christensen did not recall any spills or releases of materials that were used or stored by the BLM in this building.

Building 2: The BLM used this building periodically for miscellaneous storage. Mr. Christensen also indicated that all underground storage tanks which were previously used by the AEC for petroleum fuel storage, were never used by the BLM. To the best of Mr. Christensen's recollection, hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Building 6: Mr. Christensen stated that, over the years, BLM used this building as a bunk house and cooking facility for BLM and U.S. Forest Service fire fighting crews. Additionally, Mr. Christensen indicated that BLM used this building periodically for miscellaneous storage. To the best of Mr. Christensen's recollection, hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Building 7: According to Mr. Christensen, the BLM continued to use the "high bay" portion of Building 7 as a mechanic and repair shop to conduct periodic minor repairs to BLM vehicles. Mr. Christensen stated that solvents were not used, stored, or disposed in this building. The BLM used the remaining portion of Building 7 to store BLM vehicles, horse trailers, and hay. The BLM also allowed the City of Monticello to store a fire truck and fire hoses in a portion of the building. Mr. Christensen did not recall any spills or releases of petroleum from BLM vehicles/equipment that were stored by the BLM in this building.

Building 8: This building was also used as a carpenter shop by the BLM. Wood working equipment, materials, and supplies were stored in this building. Mr. Christensen did not recall any spills or releases of chemicals or materials that were stored by the BLM in this building.

Building 9: This building was used primarily as a seed storage area by the BLM. The seed (e.g., wheatgrass, fescue, ryegrass, etc.) was used by the BLM for various range revegetation and reclamation projects. BLM also stored new and used tires in this building. Mr. Christensen was asked if the BLM ever stored or used pesticides and/or herbicides in conjunction with the BLM revegetation or reclamation projects. Mr. Christensen stated that pesticides and herbicides were not required for the BLM reclamation/revegetation activities, and that these materials were never stored/used by the BLM at BLM Compound. Mr. Christensen did not recall any spills or releases of materials that were used or stored by the BLM in this building.

Building 10: The BLM used this structure as a storage shed for fire fighting and preparedness supplies and equipment. To the best of Mr. Christensen's recollection, hazardous chemicals and/or substances were not used or stored by the BLM at this location.

Helicopter Fuel: Two fifty-five gallon drums were left behind by the BLM after the site was relinquished to DOE in 1990. One of the drums was labeled "jet fuel." According to Mr. Christensen, these drums contained fuel that was used in the BLM helicopters. Mr. Christensen stated that the nearest supplier of helicopter fuel was located in either Grand Junction, Colorado, or Farmington, New Mexico. Mr. Christensen stated that BLM would buy helicopter fuel for refueling purposes on an as-needed basis; however, an on-hand reserve of fuel was not routinely stored at the BLM Compound. To the best of Mr. Christensen's recollection, the BLM did not spill, release, or dispose of helicopter fuel at the BLM Compound.

Native American Remains: In approximately 1990, Mr. Christensen buried a wooden crate (measuring approximately 3' x 3' x 6') containing the remains of Native American Indians, on the BLM Compound. Although their exact origin is unknown, it is suspected that the remains originated in the Monticello, Blanding, Utah region. According to Mr. Christensen, the wooden crate was buried in the northeast corner of the BLM Compound; the top of the crate being approximately one foot below the ground surface.

Meeting/Telephone Conference Record

__Telephone Conference __X__ Meeting ____Other (specify) _____
Date: November 2, 1994 **Property Address** (if applicable)
Time: 9:30 a.m. **DOE ID Number**

Parties (list all participants):

Name	Company/Agency	Telephone Number/Extension
Mr. Chuck Brunner	RUST Geotech Inc., Site Management	(303) 248-6600
Mike Gardner	RUST Geotech Inc., Environmental Compliance	(303) 248-6031

This Record Prepared By: Mike Gardner **Date:** November 2, 1994

Subject: AEC and BLM activities at the former BLM Compound (MP-00181-OT, Phase I)

The purpose of this Record of Meeting is to document an interview between Mr. Chuck Brunner and Mike Gardner (both of Geotech), on November 2, 1994. Mr. Brunner was a former employee of Lucius-Pitkin, a millsite contractor/operator for the AEC. Between approximately 1948 and 1951, Mr. Brunner lived in the employee housing units located on the millsite. Mr. Brunner later moved to Grand Junction, Colorado where he worked for the AEC Grand Junction Office contractor. Mr. Brunner continued to conduct quarterly inspections of the millsite including the BLM Compound area beginning in the early 1970's. Mr. Brunner has been continuously, and remains employed at the U.S Department of Energy Grand Junction Projects Office.

During the interview with Mr. Brunner, each building on the BLM Compound was discussed as well as the types of activities that both the AEC and the BLM were responsible for. The following is a summary of each of the buildings on the BLM Compound, and the activities/uses of those structures by the AEC and/or BLM, according to Mr. Brunner:

Foundation A: This building was used as a guard house by the AEC, and was later demolished. The BLM did not occupy this building or use the remaining foundation for any purpose. To the best of Mr. Brunner's recollection, hazardous chemicals and/or substances (excepting standard medical supplies) were never stored, used, or disposed by the AEC at this location.

Foundation B: The AEC used this structure as a vehicle washing facility. However, according to Mr. Brunner, this structure "...was gone (i.e., demolished) by the time BLM ever came on the scene." Mr. Brunner stated that, due to the nature of the activities conducted by the AEC at this building, it is possible that hazardous substances may have been used by the AEC at this location. Mr. Brunner does not recall any incidents where the AEC spilled, released, or disposed of any hazardous substances or chemicals that were used at this location. This location was not used by the BLM for any purpose.

Foundation C: The AEC used this structure as a mechanic shop/garage. However, according to Mr. Brunner, this structure was also demolished by the AEC prior to BLM occupancy. Mr. Brunner stated that, due to the nature of the activities conducted by the AEC at this building, it is possible that hazardous substances (e.g., cleaning solvents, motor oils, lubricants, etc.) may have been used by the AEC at this location. Mr. Brunner does not recall any incidents where the AEC spilled, released, or disposed of any hazardous substances or chemicals that were used at this location. This location was not used by the BLM for any purpose.

Foundation D: This structure was used by the AEC as a sample storage building. According to Mr. Brunner, this structure was also demolished by the AEC prior to BLM occupancy. To the best of Mr. Brunner's knowledge, the AEC did not store or use hazardous chemicals and/or substances at this location. This location was not used by the BLM for any purpose.

Foundation E: The AEC used this structure as a "change house," where employees would shower and change clothes at the end of their work shifts. According to Mr. Brunner, this structure was also demolished by the AEC prior to BLM occupancy. To the best of Mr. Brunner's knowledge, the AEC did not store or use hazardous chemicals and/or substances at this location. This location was not used by the BLM for any purpose.

Foundation F: Mr. Brunner did not recall what this structure was, nor whom it was used by (i.e., AEC or BLM). A concrete stemwall is all that remains of the structure. To the best of Mr. Brunner's knowledge, neither the AEC nor the BLM stored, used, or disposed hazardous chemicals and/or substances at this location.

Building 1: Mr. Brunner recalled that this building was used as a paint storage shed by the AEC. Mr. Brunner did not recall any spills or releases of paint or related materials that were stored inside this structure by the AEC. Mr. Brunner did not recall whether or not the BLM ever used this building.

Building 2: According to Mr. Brunner, this building was used by the AEC for storage and warehousing purposes. To the best of Mr. Brunner's knowledge, the AEC did not store or use hazardous chemicals and/or substances at this location. Mr. Brunner did not recall that the BLM ever used this building for any purpose.

Building 6: According to Mr. Brunner, the AEC used this building as a central supply storage area. Mr. Brunner could not recall whether or not the AEC stored hazardous chemicals and/or substances at this location. Further, Mr. Brunner does not recall any spills or releases of materials that may have been stored by the AEC inside this building. Mr. Brunner did not recall that the BLM ever used this building for any purpose.

Building 7: According to Mr. Brunner, The AEC used the west portion of Building 7 as a mechanic shop, and the rest of the building was used to store soda ash for use in the carbonate leaching process. The only hazardous substances that the AEC would have stored in this building would be those products typically associated with the repair and maintenance of millsite equipment and vehicles. To the best of Mr. Brunner's knowledge, the AEC did not spill, release, or dispose of any hazardous chemicals and/or substances which may have been associated with the AEC activities at this building. Mr. Brunner stated that the BLM also used the western portion of this building as a vehicle maintenance shop; however, the nature of the BLM maintenance activities were not as extensive as those conducted by the AEC. The BLM used the remaining portion of this building to store hay, horse trailers, etc. To the best of Mr. Brunner's knowledge, the BLM did not spill, release, or dispose of any hazardous chemicals and/or substances which may have been associated with the BLM activities at this building.

Building 8: Mr. Brunner recalled that this building was used as a carpenter's shop by both the AEC and the BLM. Typical woodworking activities are all that are known to have occurred at this location. According to Mr. Brunner, various wood stains, varnishes, paints, and thinners may have been used in this building, but to the best of his knowledge, neither the AEC nor the BLM stored, disposed, or spilled hazardous chemicals and/or substances at this location.

Building 9: Mr. Brunner stated that the AEC used this building as storage for Ammonium Nitrate, which was used in the milling process. Mr. Brunner did not recall any spills or releases of materials that were stored inside this structure by the AEC. The BLM used this structure to store miscellaneous items (e.g., tires, tools, fencing materials, etc.). According to Mr. Brunner, the BLM did not store, use, or dispose hazardous chemicals and/or substances at this location.

Building 10: According to Mr. Brunner, this structure was used as an "odds-n-ends" storage shed by both the AEC and the BLM. To the best of his recollection, neither the AEC nor the BLM stored, used, or disposed hazardous chemicals and/or substances at this location.

Suspected Helicopter Fuel: Mr. Brunner knew nothing of the two drums discovered on the BLM Compound containing what is suspected to be helicopter fuel.

Native American Remains: Mr. Brunner knew nothing of the Native American remains suspected to be buried on the BLM Compound.

APPENDIX B
1989 Sample Activity Summary

Summary of Samples Collected During 1989

Sample Location (or Type of sample)	Sample Matrix	Sample Collection Method	Requested Analysis	Sample Ticket Number
Trip Blank	Liquid	NA	EP[1] Toxicity metals	MLA-526
Equipment Blank	Liquid	NA	EP-Toxicity metals	MLA-527
138445 (Building 1)	Soil	Scoop	EP-Toxicity metals	MLA-528
151451 (Building 1)	Soil	Scoop	EP-Toxicity metals	MLA-529
Equipment Blank	Liquid	NA	EP-Toxicity metals HSL[2] VOCs	MLA-531
380447 (Foundation B)	Soil	Scoop	EP-Toxicity metals	MLA-532
410440 (Foundation C)	Soil	Scoop	EP-Toxicity metals HSL VOCs	MLA-533
488434 (Foundation D)	Soil	Scoop	EP-Toxicity metals	MLA-534
502444 (Foundation D)	Soil	Auger	EP-Toxicity metals	MLA-535
520444 (Foundation E)	Soil	Auger	EP-Toxicity metals	MLA-536
560434 (Foundation E)	Soil	Scoop	EP-Toxicity metals	MLA-537
607450 (Concrete Ditch)	Soil	Scoop	EP-Toxicity metals	MLA-538
607450 (Duplicate)	Soil	Scoop	EP-Toxicity metals	MLA-539
Equipment Blank	Liquid	NA	EP-Toxicity metals	MLA-540
224396 (Building 6)	Soil	Auger	EP-Toxicity metals	MLA-545
254464 (Building 2)	Soil	Auger	EP-Toxicity metals Ignitability	MLA-546
275465 (Building 2)	Soil	Auger	EP-Toxicity metals	MLA-547
590430 (Foundation E)	Soil	Auger	EP-Toxicity metals Ignitability	MLA-548
Equipment Blank	Liquid	NA	EP-Toxicity metals	MLA-549
580425 (Foundation E)	Soil	Auger	EP-Toxicity metals	MLA-550
540383 (Building 7)	Soil	Auger	EP-Toxicity metals	MLA-551
540383 (Duplicate)	Soil	Auger	EP-Toxicity metals	MLA-552
485383 (Building 7)	Soil	Auger	EP-Toxicity metals	MLA-553
530423 (Building 7)	Soil	Auger	EP-Toxicity metals Ignitability	MLA-554

Sample Location (or Type of sample)	Sample Matrix	Sample Collection Method	Requested Analysis	Sample Ticket Number
695411 (Cistern)	Soil	Auger	EP-Toxicity metals	MLA-555
625280 (Building 10)	Soil	Auger	EP-Toxicity metals pH	MLA-556
426227 (Abandoned Well)	Soil	Auger	EP-Toxicity metals	MLA-557
Equipment Blank	Liquid	NA	EP-Toxicity metals	MLA-558
270434 (Building 2)	Soil	Scoop	EP-Toxicity metals	MLA-559
295440 (Building 2)	Soil	Scoop	EP-Toxicity metals	MLA-560
305431 (Building 2)	Soil	Scoop	EP-Toxicity metals	MLA-561
320440 (Building 2)	Soil	Scoop	EP-Toxicity metals	MLA-562
330450 (Building 2)	Soil	Scoop	EP-Toxicity metals	MLA-563
330450 (Duplicate)	Soil	Scoop	EP-Toxicity metals	MLA-564
595355 (Building 7)	Soil	Scoop	EP-Toxicity metals Ignitability	MLA-568
565365 (Building 7)	Soil	Scoop	EP-Toxicity metals	MLA-569
545365 (Building 7)	Soil	Scoop	EP-Toxicity metals Ignitability	MLA-570
533365 (Building 7)	Soil	Scoop	EP-Toxicity metals	MLA-571
515365 (Building 7)	Soil	Scoop	EP-Toxicity metals	MLA-572
495365 (Building 7)	Soil	Scoop	EP-Toxicity metals	MLA-573
455370 (Building 7)	Soil	Scoop	EP-Toxicity metals	MLA-574
455370 (Duplicate)	Soil	Scoop	EP-Toxicity metals	MLA-575
Equipment Blank	Liquid	NA	EP-Toxicity metals	MLA-576
393385 (Building 7)	Soil	Scoop	EP-Toxicity metals	MLA-577
376353 (Building 7)	Soil	Scoop	EP-Toxicity metals pH	MLA-578
692418 (Cistern Contents)	Liquid	Drum Thief	EP-Toxicity metals	MLA-581
Equipment Blank	Liquid	NA	EP-Toxicity metals	MLA-584
Trip Blank	Liquid	NA	HSL VOCs	MLA-585
Equipment Blank	Liquid	NA	HSL VOCs	MLA-586

Sample Location (or Type of sample)	Sample Matrix	Sample Collection Method	Requested Analysis	Sample Ticket Number
410440 (Foundation C - Duplicate)	Soil	Scoop	HSL VOCs	MLA-587
692418 (Cistern Contents)	Liquid	Drum Thief	HSL semi-VOCs	MLA-588
692418 Drum 1	Liquid	Drum Thief	HSL semi-VOCs	MLA-589
692418 Drum 2	Liquid	Drum Thief	HSL semi-VOCs	MLA-590
Equipment Blank	Liquid	NA	HSL VOCs	MLA-591

[1]EP= Extraction Procedure
[2]HSL= Hazardous Substance List

Description of 1989 Sample Locations

- **Suspected Paint Spills Near Building 1**
  (Grid Location Numbers 138445 and 151451)

Historically, Building 1 was used as a paint shop and as a paint storage warehouse. Paint stains were noted on the concrete floor of this building and on the soil surface outside the doorway of the building. Two samples were collected from the soils adjacent to Building 1. The first sample was collected on the south side of Building 1 (138445) from the 0- to 6-inch depth interval. No discolored soils (surface or subsurface), nor measurable VOC's (using a PID) were observed at this location. The second sample was collected from the discolored soils immediately east of Building 1 (151451 - adjacent to the concrete stoop) from the 0- to 9-inch depth interval. It was suspected that the area was discolored due to a paint spill. No VOCs were detected using a PID. Both samples were submitted for EP-Toxicity metals analysis.

- **Foundation B Floor Drain Pit**
  (Grid Location Number 380447)

A sample of the contents of a floor drain pit located in Foundation B, was collected from the 0- to 6-inch depth interval. The drain pit contained natural colored sandy soil. No VOCs were detected using a PID. This sample was submitted for EP-Toxicity metals analysis.

- **Foundation C Floor Drain Pit**
  (Grid Location Number 410440)

A sample (MLA-533) and a duplicate sample (MLA-587) of the contents of the Foundation C floor drain pit were collected from the 0- to 6-inch depth interval. The drain pit contained a black, oil-stained, sandy material. PID measurements detected VOCs in side the pit at 13 ppm. Sample MLA-533 was submitted for EP-Toxicity metals and CERCLA HSL VOCs analyses, and Sample MLA-587 was submitted for HSL VOCs analysis only.

- **Foundation D Floor Drain Pit**
  (Grid Location Number 488434)

The contents of the floor drain pit in Foundation D were sampled from the 0- to 2-inch depth interval. No VOCs were detected using a PID. The drain pit contents were stained dark brown in color. This sample was submitted for EP-Toxicity metals analysis.

- **Discolored Soils Adjacent to Foundation D**
  (Grid Location Number 502444)

Discolored soils east of Foundation D were sampled. The soils appeared to be a dark, ash or slag type of material. This sample was collected from the 0- to 18-inch depth interval. No VOCs were detected using a PID. This sample was submitted for EP-Toxicity metals analysis.

- **Discolored Soils Adjacent to Foundation E (Grid Location Number 520444)**

Discolored soils west of Foundation E were sampled. The soils appeared to be a dark, ash or slag type of material. This sample was collected from the 0- to 18-inch depth interval. No VOCs were detected using a PID. This sample was submitted for EP-Toxicity metals analysis.

- **Foundation E Floor Drain Pit (Grid Location Number 560434)**

The contents of the floor drain pit in Foundation E were sampled from the 0-to 4-inch depth interval. No VOCs were detected using a PID. The drain pit contents were stained brown and gray in color. This sample was submitted for EP-Toxicity metals analysis.

- **Concrete Diversion Ditch Sediments (Grid Location Number 607450)**

A sample, and a duplicate sample were collected from sediments in the bottom of a concrete diversion ditch located immediately east of Building 7. Sample material was collected from the 0- to 3-inch depth interval. No discoloration or VOCs (using a PID) were associated with the sample location. These samples were submitted for EP-Toxicity metals analyses.

- **Suspected Buried Tank Location West of Building 6 (Grid Location Number 224396)**

A suspected UST location west of Building 6 was sampled. Sample material was collected from the 0- to 8-foot depth interval. No discoloration or VOCs (using a PID) were associated with the sample location. This sample was submitted for EP-Toxicity metals analyses.

- **Suspected Buried Tank Location North of Building 2 (Grid Location Numbers 254464 and 275465)**

An area north of Building 2 was suspected to be the location of an UST. Two samples were collected from this area. The first sample was collected from the west side of the suspect area (254464). Sample material was collected from the 0- to 8-foot depth interval. No discoloration or VOCs (using a PID) were associated with this sample location. This sample was submitted for EP-Toxicity metals and ignitability analyses. The second sample was collected from the east side of the suspect area (275465). Sample material was collected from the 0- to 10-foot depth interval. No discoloration or VOCs (using a PID) were associated with this sample. This sample was submitted for EP-Toxicity metals analysis.

- **Suspected Buried Tank Location East of Foundation E (Grid Location Numbers 590430 and 580425)**

An area east of Foundation E was suspected to be the location of an UST. Two samples were collected from this area. The first sample was collected from a location (590430) southeast of the suspect tank location area. Sample material was collected from the 0- to 12-foot depth interval. No soil discoloration or VOCs (using a PID) were associated with this sample location. This sample was submitted for EP-Toxicity metals and ignitability analyses. The second sample was collected from a location (580425) south of the suspected tank location area. Sample material was collected from the 0- to 9-foot depth interval. No soil discoloration, or VOCs (using a PID) were associated with this sample location. This sample was submitted for EP-Toxicity metals analysis.

- **Suspected Buried Tank Location North of Building 7 (Grid Location Numbers 540383, 485383, and 530423)**

An area north of Building 7 was suspected to be the location of an UST. Three samples were collected from this area. The first sample, and a duplicate sample, were collected on the southeast side of the suspect area (540383). Sample material was collected from the 0- to 7-foot depth interval. No soil discoloration or VOCs (using a PID) were associated with this sample location. This sample was submitted for EP-Toxicity metals analysis. The second sample was collected from the southwest side of the suspect area (485383). Sample material was collected from the 0- to 7-foot depth interval. No soil discoloration, or VOCs (using a PID) were associated with this sample location. This sample was submitted for EP-Toxicity metals analysis. The third sample was collected from the north side of the suspect area (530423). Sample material was collected from the 0- to 7-foot depth interval. No VOCs (using a PID) or soil discoloration were associated with this location. This sample was submitted for EP-Toxicity metals and ignitability analyses.

- **Concrete Cistern (Grid Location Numbers 695411 and 692418)**

A soil sample was collected immediately down slope of the concrete cistern (695411) from the 0- to 9-foot depth interval. No soil discoloration or VOCs (using a PID) were associated with this location. This sample was submitted for EP-Toxicity metals analysis. A liquid sample of the cistern contents (692418) was collected and submitted for EP-Toxicity metals and HSL semi-VOCs analyses. No VOCs (using a PID) were detected or associated with the cistern contents.

- **Automotive Battery Storage Area Northwest of Building 10 (Grid Location Number 625280)**

A sample was collected from an automotive battery storage area at the northwest corner of Building 10. The sample was collected from the 0- to 45-inch depth interval. No discolored soils or VOCs (using a PID) were associated with this location. This sample was submitted for EP-Toxicity metals analysis and pH determination.

- **Abandoned Well (Grid Location Number 426227)**

A soil sample was collected adjacent to a structure identified as an abandoned well. The sample was collected from the 0- to 6-foot depth interval. No VOCs (using a PID) or soil discoloration were noted at this location. The sample was submitted for EP-Toxicity metals analysis.

- **Building 2 Crawlspace (Grid Location Numbers 270434, 295440, 305431, 320440, and 330450)**

Five soil samples were collected from the crawlspace of Building 2. The first sample was collected south of a partially buried tank (270434) from the 0- to 6-inch depth interval. The sample was collected from sandy, brown-discolored soils. No VOCs were detected using a PID. The second sample was collected near the center of the crawlspace (295440) from the 0- to 6-inch depth interval. The soil exhibited a brown and white discoloration. No VOCs were detected using a PID. The third sample was collected near a drum storage area (305431) from the 0- to 6-inch depth interval. The soils exhibited a brown-discolored appearance. No VOCs were detected using a PID. The fourth soil sample was collected from the contents of a wooden storage bin (320440). The sandy soil exhibited a brown and white discoloration. VOCs were not detected using a PID. The fifth sample, and a duplicate sample were collected from the northeast corner of the crawlspace (330450), near a drum storage area. The sample was collected from the 0- to 6-inch depth interval. No soil discoloration or VOCs (using a PID) were associated with this sample location. All samples were submitted for EP-Toxicity metals analyses.

- **Building 7 (Grid Location Numbers 595355, 565365, 545365, 533365, 515365, 495365, 455370, and 393385)**

Eight locations in Building 7 were sampled. Six soil samples were collected from obvious oil-stained areas (595355, 565365, 545365, 533365, 515365, and 493365). The source of the oil-stains is suspected to be leaks from vehicles stored in the work bays of Building 7. Each sample was collected from the 0- to 6-inch depth interval. No measurable VOCs (using a PID) were associated with any of these locations. The seventh sample was collected in the

work bay (455370) used for laboratory chemical container storage. A sample, and a duplicate sample, were collected from the 0- to 6-inch depth interval. No soil discoloration was noted. VOCs were measured at 1 ppm at this sample location. The eighth sample was collected from discolored soils located in the valve pit (393385). A sample was collected from the 0- to 6-inch depth interval. No VOCs were detected using a PID. All samples were submitted for EP-Toxicity metals analysis. Samples collected from 595355 and 545365 were also submitted for ignitability analysis.

- **Southwest Corner of Building 7 (Grid Location Number 376353)**

A sample was collected from an automotive battery storage area located at the southwest corner of Building 7. Sample material was collected from the 0- to 15-inch depth interval. No VOCs (using a PID) or unusual soil discoloration were noted at this location. The sample was submitted for EP-Toxicity metals analysis and pH determination.

- **Two 55-gallon Drums Located on Concrete Cistern (Grid Location Number 692418)**

The contents of two abandoned 55 gallon drums, stored on the cistern, were sampled. The drums were field identified as Drum 1 and Drum 2. Drum 1 (sample number MLA-589) contained a green liquid. PID measurements indicated VOC levels in the drum headspace of 2 ppm. VOC measurements of the headspace in Drum 2 (sample number MLA-590) detected VOCs at 60 ppm. These samples were submitted for HSL semi-VOCs analysis.

APPENDIX C
1993 Sample Activity Summary

Summary of Samples Collected During 1993

Sample Location (or type of sample)	Sample Matrix	Sample Collection Method	Requested Analysis	Sample Ticket Number
Trip Blank	Liquid	NA	TCL[1] VOCs	NBB 601
Concrete Cistern Contents	Liquid	Bailer	TCL VOCs TCL semi-VOCs PCBs[2] Gamma Scan	NBB 602
Concrete Cistern Contents (Duplicate)	Liquid	Bailer	TCL VOCs TCL semi-VOCs PCBs Gamma Scan	NBB 603
Trip Blank	Liquid	NA	TCL VOCs	NBB 604
Drum 559	Liquid	COLIWASA[3]	TCL VOCs PPL[3] metals PCBs Gamma Scan	NBB 605
Drum 559 (Duplicate)	Liquid	COLIWASA	PPL metals	NBB 606
Drum 560	Liquid	COLIWASA	TCL VOCs PPL metals PCBs Gamma Scan	NBB 607
Building 7 Valve Pit Sediments	Soil	Scoop	TCL VOCs TCL semi-VOCs PPL metals PCBs	NBB 608
Trip Blank	Liquid	NA	TCL VOCs	NBB 609
Foundation C Floor Drain Pit Sediments	Soil	Scoop	TCL VOCs TCL semi-VOCs PPL metals PCBs	NBB 610
Foundation C Subfloor Soils	Soil	Auger	TCL VOCs TCL semi-VOCs PPL metals PCBs	NBB 611

Sample Location (or type of sample)	Sample Matrix	Sample Collection Method	Requested Analysis	Sample Ticket Number
Equipment Blank	Liquid	NA	TCL VOCs TCL semi-VOCs PPL metals PCBs	NBB 612
Methanol Rinsate	Liquid	NA	TCLP[4] VOCs TCLP semi-VOCs PCBs Gamma Scan	NBB 613
Non-methanol Rinsate	Liquid	NA	TCLP VOCS TCLP semi-VOCs TCLP metals PCBs Gamma Scan	NBB 614

[1] TCL = Target Compound List
[2] PCBs= Polychlorinated Biphenyls
[3] COLIWASA= Composite Liquid Waste Sampler
[4] PPL= Priority Pollutant List
[5] TCLP= Toxicity Characteristic Leaching Procedure

Description of 1993 Sample Locations

- **Concrete Cistern Contents**

The concrete cistern, located in the northeast corner of the BLM property, measures approximately six feet wide, six feet high, and 10 feet long, and contains 4 to 5 feet of liquid. Concrete debris that has sloughed off from the interior of the cistern was noted on the floor of the cistern. No sludge materials or multi-phase liquids were observed in the cistern. The bottom of the cistern was determined to be constructed of concrete. A single line enters/exits the cistern on the west side. The cistern is constructed with two chambers separated by concrete partition/half-wall. Two access portals, one to each chamber, are located on the top of the cistern. Prior to sampling, PID measurements were collected from the interior of the cistern and from the breathing zone. No measurable VOCs were detected using a PID.

A grab sample and a duplicate sample (NBB-601, NBB-602) were collected from the liquid contents of the concrete cistern with a disposable bailer attached to a bailer reel spooled with teflon line. The bailer was lowered slowly into the cistern until the concrete bottom was encountered. The bailer was then retrieved and the contents were dispensed into sample containers. Samples were collected and submitted for TCL VOCs, TCL semi-VOCs, PCBs, and gamma scan analyses.

- **Contents of 55-Gallon Drums**

In accordance with Geotech drum inventory management procedures (RUST Geotech Inc. *Site Management Manual,* 1993a), the two 55-gallon drums were labeled as Drum 559 and Drum 560, respectively. A COLIWASA was used to sample the contents of each drum. Samples collected from these drums were submitted for TCL VOCs, PPL metals, and PCBs analyses.

Drum 559 contained approximately 24 inches of a dark green viscous liquid. No liquid phase separations, sludge materials, or sediments were associated with the contents of this drum. Using a PID, VOC measurements were collected from the drum headspace and from the breathing zone. No measurable VOCs were detected in the breathing zone; VOCs in the headspace of the drum measured 18 parts per million (ppm). A sample and a duplicate sample (NBB 605, NBB 606 respectively) of the liquid was collected by using a COLIWASA. The COLIWASA was lowered to the bottom of the drum with the valve open, the valve was closed and the COLIWASA was then withdrawn from the drum. The contents of the COLIWASA were then immediately transferred into

sample containers. A field measurement of the pH of the liquid was attempted with litmus paper; however, the results were inconclusive.

Drum 560 contained approximately 15 inches of a clear, yellow-tinted liquid. No liquid phase separations, sludge materials, or sediments were associated with the contents of this drum. PID measurements indicated VOC concentrations in the drum headspace of 17 ppm. PID measurements collected during sampling indicated a concentration of VOCs at 1 ppm in the breathing zone. A sharp pungent odor associated with the drum contents was noted. The drum contents were sampled (NBB-607) with a COLIWASA in the same manner as described above. Field measurement of the pH of the liquid, with litmus paper, was attempted; however, the results were inconclusive.

- **Discolored Sediments in Building 7 Valve Pit**

Discolored soils inside a valve pit located within the western portion of Building 7 were sampled. The soil exhibit an oily, petroleum-stained appearance. The sample (NBB-608) was submitted for TCL VOCs, TCL semi-VOCs, PPL metals and PCB analyses. PID measurements indicated that VOCs were not present in the valve pit nor in the breathing zone during sampling. Field screening for PCBs contamination was performed using immunoassay technology. The results of the field screening tests were negative (no PCBs above the 5 ppm detection limit were indicated).

Utility location personnel were employed to trace locations of lines associated with the valve pit. A line extending approximately 10 feet east from the valve pit to a dividing wall was traced. The line then turns north and extends out of Building 7. Another line extends south from the pit out of the building, and across the roadway, at which point the signal was lost. Utility location instruments were unable to determine whether the drain line exiting Foundation C is coupled with any of the lines associated with the Building 7 valve pit.

- **Foundation C Floor Drain Pit Sediments**

Foundation C is located north of Building 7. A floor drain pit is located in the center of the foundation and measures approximately 1.3-feet square by 3-feet deep. The top of the outlet (i.e., drain line) for the drain pit is approximately 6-inches below the surface of the foundation floor. Measuring from the top of drain pit (i.e., the surface of the concrete floor), the drain pit contained discolored soils and sediments in the 0.5 feet to 2 feet depth interval, and sludge-like materials from the 2 feet to 3 feet depth interval. The sludge-like material in the bottom of the drain pit exhibited a dark-grey to black color, and a pungent petroleum-like odor. A sample (NBB 610) was collected from the contents of the drain pit at the 2.5 to 3 foot depth interval. The sample was submitted for TCL VOCs, TCL semi-VOCs, PPL metals, and PCBs analyses. Prior to sampling, PID measurements were collected from both the top of the drain pit and the breathing zone. PID measurements detected VOC levels inside the pit at 5 ppm, and briefly in the breathing zone at 3 ppm. Field screening for PCBs contamination was performed using immunoassay technology. The results of the field screening tests were negative (no PCBs

above the 5 ppm detection limit were indicated). Utility line location personnel were employed to trace the locations of the drain lines associated with Foundation C drain pit. Instrumentation indicated that the line exits the drain pit and extends south to the north wall of Building 7, at which point the signal was lost.

- **Foundation C Subfloor Soils**

The concrete slab adjacent to the drain line and the floor drain pit was core-drilled and the underlying soils were sampled. The concrete in the vicinity of the floor drain is approximately 1.3 feet thick. Soil was collected with a stainless steel hand auger from the 2, 4, and 6-foot depth intervals. PID measurements were collected at each interval and in the breathing zone during sampling activities. No soil discoloration or VOCs were associated with any of the depth intervals. A soil sample (NBB-611) was composited from the 1.3 to 2-foot depth interval and submitted for TCL VOCs, TCL semi-VOCs, PPL metals, and PCBs analyses. Field screening for PCBs contamination was performed using immunoassay technology. The results of the field screening tests were negative (no PCBs above the 5 ppm detection limit were indicated).

APPENDIX D
Analytical Data Summary

(Due to the volume of analytical data associated with this property,
a copy of the analytical supporting documentation will be provided if requested).

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 531

DATE: 30-OCT-89
LAB ID: 164848

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

00010

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA531

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: IT-MWL Case No.: 00181 SAS No.: NA SDG No.: 35621

Matrix: (soil/water) WATER Lab Sample ID: MM0332

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: MM0332

Level: (low/med) LOW Date Received: 09/16/89

% Moisture: not dec. ____ Date Analyzed: 09/20/89

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	3	BJ
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	7	B
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
----------	Total Xylenes	5	U

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 532

DATE: 30-OCT-89
LAB ID: 164849

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	2.2	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 533

DATE: 30-OCT-89
LAB ID: 164850

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
MLA533RE

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: IT-MWL Case No.: 00181 SAS No.: NA SDG No.: 35621

Matrix: (soil/water) SOIL Lab Sample ID: MM0333

Sample wt/vol: 1.0 (g/mL) G Lab File ID: MM0333R

Level: (low/med) LOW Date Received: 09/16/89

% Moisture: not dec. 28 Date Analyzed: 09/20/89

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	69	U
74-83-9	Bromomethane	69	U
75-01-4	Vinyl Chloride	22	J
75-00-3	Chloroethane	69	U
75-09-2	Methylene Chloride	2200	BE
67-64-1	Acetone	1500	E
75-15-0	Carbon Disulfide	38	
75-35-4	1,1-Dichloroethene	26	J
75-34-3	1,1-Dichloroethane	35	U
540-59-0	1,2-Dichloroethene (total)	34	J
67-66-3	Chloroform	4600	E
107-06-2	1,2-Dichloroethane	140	
78-93-3	2-Butanone	340	B
71-55-6	1,1,1-Trichloroethane	35	U
56-23-5	Carbon Tetrachloride	35	U
108-05-4	Vinyl Acetate	69	U
75-27-4	Bromodichloromethane	35	U
78-87-5	1,2-Dichloropropane	35	U
10061-01-5	cis-1,3-Dichloropropene	30	J
79-01-6	Trichloroethene	1200	
124-48-1	Dibromochloromethane	35	U
79-00-5	1,1,2-Trichloroethane	35	U
71-43-2	Benzene	86	
10061-02-6	Trans-1,3-Dichloropropene	35	U
75-25-2	Bromoform	35	U
108-10-1	4-Methyl-2-Pentanone	990	B
591-78-6	2-Hexanone	760	B
127-18-4	Tetrachloroethene	210	
79-34-5	1,1,2,2-Tetrachloroethane	280	
108-88-3	Toluene	540	B
108-90-7	Chlorobenzene	35	U
100-41-4	Ethylbenzene	190	
100-42-5	Styrene	35	U
----------	Total Xylenes	1100	

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 534

DATE: 30-OCT-89
LAB ID: 164851

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 535

DATE: 30-OCT-89
LAB ID: 164852

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 536

DATE: 30-OCT-89
LAB ID: 164853

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 537

DATE: 30-OCT-89
LAB ID: 164854

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 538

DATE: 30-OCT-89
LAB ID: 164855

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 539

DATE: 30-OCT-89
LAB ID: 164856

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 13-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 540

DATE: 30-OCT-89
LAB ID: 164857

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 14-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 545

DATE: 30-OCT-89
LAB ID: 164862

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 14-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 546

DATE: 30-OCT-89
LAB ID: 164863

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 14-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
IGN	>160	DEG F	21-SEP-89	ASTM
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 547

DATE: 30-OCT-89
LAB ID: 164864

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 14-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 548

DATE: 30-OCT-89
LAB ID: 164865

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX:
UNC REQUISITION: 3100

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 18-SEP-89
DATE COLLECTED: 14-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	09-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	09-OCT-89	AS-5 R03
Barium	<2.0	MG/L	09-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	09-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	09-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	05-OCT-89	AS-3 R00
IGN	>160	DEG F	21-SEP-89	ASTM
Lead	<1.0	MG/L	09-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	09-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 549

DATE: 25-OCT-89
LAB ID: 164986

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 550

DATE: 25-OCT-89
LAB ID: 164987

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 551

DATE: 25-OCT-89
LAB ID: 164988

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 552

DATE: 25-OCT-89
LAB ID: 164989

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 553

DATE: 25-OCT-89
LAB ID: 164990

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 554

DATE: 25-OCT-89
LAB ID: 164991

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
IGN	> 160	DEG F	25-SEP-89	ASTM
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 555

DATE: 25-OCT-89
LAB ID: 164992

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 556

DATE: 25-OCT-89
LAB ID: 164993

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
PH	7.9	PH	21-SEP-89	H-4 R01
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 557

DATE: 25-OCT-89
LAB ID: 164994

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 15-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 558

DATE: 25-OCT-89
LAB ID: 164995

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 559

DATE: 25-OCT-89
LAB ID: 164996

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 560

DATE: 25-OCT-89
LAB ID: 164997

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 561

DATE: 25-OCT-89
LAB ID: 164998

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 562

DATE: 25-OCT-89
LAB ID: 164999

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	0.0108	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 563

DATE: 25-OCT-89
LAB ID: 165000

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 564

DATE: 25-OCT-89
LAB ID: 165001

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 568

DATE: 25-OCT-89
LAB ID: 165002

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
IGN	> 160	DEG F	25-SEP-89	ASTM
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 569

DATE: 25-OCT-89
LAB ID: 165003

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 570

DATE: 25-OCT-89
LAB ID: 165004

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
IGN	> 160	DEG F	25-SEP-89	ASTM
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 571

DATE: 25-OCT-89
LAB ID: 165005

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 572

DATE: 25-OCT-89
LAB ID: 165006

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 573

DATE: 25-OCT-89
LAB ID: 165007

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 574

DATE: 25-OCT-89
LAB ID: 165008

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 575

DATE: 25-OCT-89
LAB ID: 165009

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 16-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 576

DATE: 25-OCT-89
LAB ID: 165010

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 17-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 577

DATE: 25-OCT-89
LAB ID: 165011

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 17-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 578

DATE: 25-OCT-89
LAB ID: 165012

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 17-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
PH	8.0	PH	21-SEP-89	H-4 R01
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 581

DATE: 25-OCT-89
LAB ID: 165014

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 17-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

UNC ANALYTICAL RESULTS

CUSTOMER ID: MS-00181
TICKET ID: MLA 584

DATE: 25-OCT-89
LAB ID: 165013

REQUESTOR: DILLIE/PLESINGE
SAMPLE MATRIX: MISC
UNC REQUISITION: 3117

PROJECT NUMBER: MS0181ER1
DATE RECEIVED: 20-SEP-89
DATE COLLECTED: 17-SEP-89

ANALYSIS REQUESTED	RESULTS	UNITS	DATE ANALYZED	METHOD OF ANALYSIS
Silver	<1.0	MG/L	10-OCT-89	AS-5 R03
Arsenic	<1.0	MG/L	10-OCT-89	AS-5 R03
Barium	<2.0	MG/L	10-OCT-89	AS-5 R03
Cadmium	<0.20	MG/L	10-OCT-89	AS-5 R03
Chromium	<1.0	MG/L	10-OCT-89	AS-5 R03
Mercury	<0.002	MG/L	11-OCT-89	AS-3 R00
Lead	<1.0	MG/L	10-OCT-89	AS-5 R03
Selenium	<0.20	MG/L	10-OCT-89	AS-5 R03

Q.C. COORDINATOR

000007
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

MLA585

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: IT-MWL Case No.: 00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0342

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: MM0342

Level: (low/med) LOW Date Received: 09/23/89

% Moisture: not dec. ____ Date Analyzed: 09/27/89

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	1	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	4	BJ
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	10	B
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
----------	Total Xylenes	5	U

MAS 10/17/89

000025

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA586

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: IT-MWL Case No.: 00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0343

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: MM0343

Level: (low/med) LOW Date Received: 09/23/89

% Moisture: not dec. Date Analyzed: 09/27/89

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	B
67-64-1	Acetone	10	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	9	BJ
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	3	J
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	2	BJ
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
----------	Total Xylenes	5	U

MAS 10/17/89

000050

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA587

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: IT-MWL Case No.: 00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) SOIL Lab Sample ID: MM0344

Sample wt/vol: 10.0 (g/mL) G Lab File ID: MM0344

Level: (low/med) MED Date Received: 09/23/89

% Moisture: not dec. 20 Date Analyzed: 09/27/89

Column: (pack/cap) PACK Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	33000	U
74-83-9	Bromomethane	33000	U
75-01-4	Vinyl Chloride	33000	U
75-00-3	Chloroethane	33000	U
75-09-2	Methylene Chloride	35000	B
67-64-1	Acetone	49000	
75-15-0	Carbon Disulfide	16000	U
75-35-4	1,1-Dichloroethene	16000	U
75-34-3	1,1-Dichloroethane	16000	U
540-59-0	1,2-Dichloroethene (total)	16000	U
67-66-3	Chloroform	46000	
107-06-2	1,2-Dichloroethane	3900	J
78-93-3	2-Butanone	28000	BJ
71-55-6	1,1,1-Trichloroethane	16000	U
56-23-5	Carbon Tetrachloride	16000	U
108-05-4	Vinyl Acetate	33000	U
75-27-4	Bromodichloromethane	16000	U
78-87-5	1,2-Dichloropropane	16000	U
10061-01-5	cis-1,3-Dichloropropene	16000	U
79-01-6	Trichloroethene	13000	J
124-48-1	Dibromochloromethane	16000	U
79-00-5	1,1,2-Trichloroethane	16000	U
71-43-2	Benzene	16000	U
10061-02-6	Trans-1,3-Dichloropropene	16000	U
75-25-2	Bromoform	16000	U
108-10-1	4-Methyl-2-Pentanone	29000	J
591-78-6	2-Hexanone	33000	U
127-18-4	Tetrachloroethene	6900	J
79-34-5	1,1,2,2-Tetrachloroethane	16000	U
108-88-3	Toluene	19000	B
108-90-7	Chlorobenzene	16000	U
100-41-4	Ethylbenzene	12000	J
100-42-5	Styrene	16000	U
----------	Total Xylenes	62000	

10/17/89 MS

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA588

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: ITMWL Case No.: MS00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0345

Sample wt/vol: 1000 (g/mL) ML Lab File ID: MM0345R

Level: (low/med) LOW Date Received: 09/23/89

% Moisture: not dec. ____ dec. ____ Date Extracted: 09/28/89

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/12/89

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA588

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: ITMWL Case No.: MS00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0345

Sample wt/vol: 1000 (g/mL) ML Lab File ID: MM0345R

Level: (low/med) LOW Date Received: 09/23/89

Moisture: not dec. ____ dec. ____ Date Extracted: 09/28/89

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/12/89

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA589

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: ITMWL Case No.: MS00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0346

Sample wt/vol: 100 (g/mL) ML Lab File ID: MM0346

Level: (low/med) LOW Date Received: 09/23/89

% Moisture: not dec. ____ dec. ____ Date Extracted: 09/28/89

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/11/89

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	100	U
111-44-4	bis(2-Chloroethyl)Ether	100	U
95-57-8	2-Chlorophenol	100	U
541-73-1	1,3-Dichlorobenzene	100	U
106-46-7	1,4-Dichlorobenzene	100	U
100-51-6	Benzyl Alcohol	100	U
95-50-1	1,2-Dichlorobenzene	100	U
95-48-7	2-Methylphenol	100	U
39638-32-9	bis(2-Chloroisopropyl)Ether	100	U
106-44-5	4-Methylphenol	100	U
621-64-7	N-Nitroso-Di-n-Propylamine	100	U
67-72-1	Hexachloroethane	100	U
98-95-3	Nitrobenzene	100	U
78-59-1	Isophorone	100	U
88-75-5	2-Nitrophenol	100	U
105-67-9	2,4-Dimethylphenol	100	U
65-85-0	Benzoic Acid	500	U
111-91-1	bis(2-Chloroethoxy)Methane	100	U
120-83-2	2,4-Dichlorophenol	100	U
120-82-1	1,2,4-Trichlorobenzene	100	U
91-20-3	Naphthalene	100	U
106-47-8	4-Chloroaniline	100	U
87-68-3	Hexachlorobutadiene	100	U
59-50-7	4-Chloro-3-Methylphenol	100	U
91-57-6	2-Methylnaphthalene	100	U
77-47-4	Hexachlorocyclopentadiene	100	U
88-06-2	2,4,6-Trichlorophenol	100	U
95-95-4	2,4,5-Trichlorophenol	500	U
91-58-7	2-Chloronaphthalene	100	U
88-74-4	2-Nitroaniline	500	U
131-11-3	Dimethyl Phthalate	100	U
208-96-8	Acenaphthylene	100	U
606-20-2	2,6-Dinitrotoluene	100	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA589

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: ITMWL Case No.: MS00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0346

Sample wt/vol: 100 (g/mL) ML Lab File ID: MM0346

Level: (low/med) LOW Date Received: 09/23/89

% Moisture: not dec. ____ dec. ____ Date Extracted: 09/28/89

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/11/89

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	500	U
83-32-9	Acenaphthene	100	U
51-28-5	2,4-Dinitrophenol	500	U
100-02-7	4-Nitrophenol	500	U
132-64-9	Dibenzofuran	100	U
121-14-2	2,4-Dinitrotoluene	100	U
84-66-2	Diethylphthalate	100	U
7005-72-3	4-Chlorophenyl-phenylether	100	U
86-73-7	Fluorene	100	U
100-10-6	4-Nitroaniline	500	U
534-52-1	4,6-Dinitro-2-Methylphenol	500	U
86-30-6	N-Nitrosodiphenylamine (1)	25	BJ
101-55-3	4-Bromophenyl-phenylether	100	U
118-74-1	Hexachlorobenzene	100	U
87-86-5	Pentachlorophenol	500	U
85-01-8	Phenanthrene	100	U
120-12-7	Anthracene	100	U
84-74-2	Di-n-Butylphthalate	100	U
206-44-0	Fluoranthene	100	U
129-00-0	Pyrene	100	U
85-68-7	Butylbenzylphthalate	100	U
91-94-1	3,3'-Dichlorobenzidine	200	U
56-55-3	Benzo(a)Anthracene	100	U
218-01-9	Chrysene	100	U
117-81-7	bis(2-Ethylhexyl)Phthalate	100	U
117-84-0	Di-n-Octyl Phthalate	100	U
205-99-2	Benzo(b)Fluoranthene	100	U
207-08-9	Benzo(k)Fluoranthene	100	U
50-32-8	Benzo(a)Pyrene	100	U
193-39-5	Indeno(1,2,3-cd)Pyrene	100	U
53-70-3	Dibenz(a,h)Anthracene	100	U
191-24-2	Benzo(g,h,i)Perylene	100	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA590DL

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: ITMWL Case No.: MS00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0347

Sample wt/vol: 100 (g/mL) ML Lab File ID: MM0347D

Level: (low/med) LOW Date Received: 09/23/89

% Moisture: not dec. ____ dec. ____ Date Extracted: 09/28/89

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/12/89

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	140	DJ
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
100-51-6	Benzyl Alcohol	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
39638-32-9	bis(2-Chloroisopropyl)Ether	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-Di-n-Propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
65-85-0	Benzoic Acid	2000	U
111-91-1	bis(2-Chloroethoxy)Methane	400	U
120-83-2	2,4-Dichlorophenol	10000	D
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	180	DJ
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	270	DJ
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	94	DJ
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethyl Phthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MLA590DL

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: ITMWL Case No.: MS00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0347

Sample wt/vol: 100 (g/mL) ML Lab File ID: MM0347D

Level: (low/med) LOW Date Received: 09/23/89

% Moisture: not dec. ____ dec. ____ Date Extracted: 09/28/89

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/12/89

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-10-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-Methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-Butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	800	U
56-55-3	Benzo(a)Anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)Phthalate	400	U
117-84-0	Di-n-Octyl Phthalate	400	U
205-99-2	Benzo(b)Fluoranthene	400	U
207-08-9	Benzo(k)Fluoranthene	400	U
50-32-8	Benzo(a)Pyrene	400	U
193-39-5	Indeno(1,2,3-cd)Pyrene	400	U
53-70-3	Dibenz(a,h)Anthracene	400	U
191-24-2	Benzo(g,h,i)Perylene	400	U

(1) - Cannot be separated from Diphenylamine

000103

EPA SAMPLE NO.

MLA591

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ITAS-KNOXVILLE Contract: 29690

Lab Code: IT-MWL Case No.: 00181 SAS No.: NA SDG No.: 35625

Matrix: (soil/water) WATER Lab Sample ID: MM0348

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: MM0348

Level: (low/med) LOW Date Received: 09/23/89

% Moisture: not dec. ____ Date Analyzed: 09/27/89

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	B
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	7	BJ
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	2	BJ
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
----------	Total Xylenes	5	U

MAS 10/17/89

IT Data Qualifiers

Data were reported with qualifiers as follows:

U — Compound analyzed for but not detected.
E — Compound exceeded calibration range of instrument.
D — Compound analyzed at a secondary dilution factor.
J — Compound detected but below the contract required quantitation limit. The value given was an estimate.
B — Compound was found in the method blank.
A — Suspected aldol condensation product.
Y — Indistinguishable isomer in tentatively identified compounds.

SAMPLE CROSS REFERENCE V2.04

CHEM-NUCLEAR GEOTECH ANALYTICAL LABORATORY

REQUISITION(S): 12197

CUSTOMER ID	TICKET	LAB ID
CISTERN	NBB 602	216674
CISTERN	NBB 603	216675
TRIP BLANK	NBB 601	216673

(SECTION IV)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NSB 601

Name: GEOTEC Contract:

Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12197 17

Matrix: (soil/water) WATER Lab Sample ID: 216673

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 216673

Level: (low/med) LOW Date Received: 11/18/93

% Moisture: not dec. 100. Date Analyzed: 11/22/93

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	CHLOROMETHANE	10.	U
74-83-9	BROMOMETHANE	10.	U
75-01-4	VINYL CHLORIDE	10.	U
75-00-3	CHLOROETHANE	10.	U
75-09-2	METHYLENE CHLORIDE	5.	U
67-64-1	ACETONE	10.	U
75-15-0	CARBON DISULFIDE	5.	U
75-35-4	1,1-DICHLOROETHENE	5.	U
75-34-3	1,1-DICHLOROETHANE	5.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	U
67-66-3	CHLOROFORM	14.	
107-06-2	1,2-DICHLOROETHANE	5.	U
78-93-3	2-BUTANONE	10.	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	U
56-23-5	CARBON TETRACHLORIDE	5.	U
108-05-4	VINYL ACETATE	10.	U
75-27-4	BROMODICHLOROMETHANE	5.	U
78-87-5	1,2-DICHLOROPROPANE	5.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	U
79-01-6	TRICHLOROETHENE	5.	U
124-48-1	DIBROMOCHLOROMETHANE	5.	U
79-00-5	1,1,2-TRICHLOROETHANE	5.	U
71-43-2	BENZENE	5.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	U
75-25-2	BROMOFORM	5.	U
108-10-1	4-METHYL-2-PENTANONE	10.	U
591-78-6	2-HEXANONE	10.	U
127-18-4	TETRACHLOROETHENE	5.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	U
108-88-3	TOLUENE	5.	U
108-90-7	CHLOROBENZENE	5.	U
100-41-4	ETHYLBENZENE	5.	U
100-42-5	STYRENE	5.	U
1330-20-7	M,P-XYLENE	5.	U
95-47-6	O-XYLENE	5.	U

(SECTION IV)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 602

:b Name: GEOTEC Contract:

:b Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12197

27

:trix: (soil/water) WATER Lab Sample ID: 216674

:mple wt/vol: 5.0 (g/mL) ML Lab File ID: 216674

:vel: (low/med) LOW Date Received: 11/18/93

Moisture: not dec. 100. Date Analyzed: 11/22/93

:lumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	CHLOROMETHANE	10.	U
74-83-9	BROMOMETHANE	10.	U
75-01-4	VINYL CHLORIDE	10.	U
75-00-3	CHLOROETHANE	10.	U
75-09-2	METHYLENE CHLORIDE	5.	U
67-64-1	ACETONE	10.	U
75-15-0	CARBON DISULFIDE	5.	U
75-35-4	1,1-DICHLOROETHENE	5.	U
75-34-3	1,1-DICHLOROETHANE	5.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	U
67-66-3	CHLOROFORM	5.	U
107-06-2	1,2-DICHLOROETHANE	5.	U
78-93-3	2-BUTANONE	10.	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	U
56-23-5	CARBON TETRACHLORIDE	5.	U
108-05-4	VINYL ACETATE	10.	U
75-27-4	BROMODICHLOROMETHANE	5.	U
78-87-5	1,2-DICHLOROPROPANE	5.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	U
79-01-6	TRICHLOROETHENE	5.	U
124-48-1	DIBROMOCHLOROMETHANE	5.	U
79-00-5	1,1,2-TRICHLOROETHANE	5.	U
71-43-2	BENZENE	5.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	U
75-25-2	BROMOFORM	5.	U
108-10-1	4-METHYL-2-PENTANONE	10.	U
591-78-6	2-HEXANONE	10.	U
127-18-4	TETRACHLOROETHENE	5.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	U
108-88-3	TOLUENE	5.	U
108-90-7	CHLOROBENZENE	5.	U
100-41-4	ETHYLBENZENE	5.	U
100-42-5	STYRENE	5.	U
1330-20-7	M,P-XYLENE	5.	U
95-47-6	O-XYLENE	5.	U

1B (SECTION V)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_602 17

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12197 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 216674

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AS671

Level: (low/med) LOW Date Received: 11/18/93

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 11/18/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/07/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

(SECTION V)

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_602 18

ab Name: CN GEOTECH Contract: _____

ab Code: _____ Case No.: 12197 SAS No.: _____ SDG No.: _____

atrix: (soil/water) WATER Lab Sample ID: 216674

ample wt/vol: 1000 (g/mL) ML Lab File ID: AS671

evel: (low/med) LOW Date Received: 11/18/93

Moisture: _____ decanted: (Y/N) ___ Date Extracted: 11/18/93

oncentrated Extract Volume: 1000 (uL) Date Analyzed: 12/07/93

njection Volume: 2.0 (uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) N pH: _____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	25	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	5	J
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

(SECTION III)

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB602

b Name: CN GEOTECH Contract: _____

Code: CNG Case No.: MONT4 SAS No.: _____ SDG No.: 12197

8

trix: (soil/water) WATER Lab Sample ID: 216674

ple wt/vol: 130.0 (g/mL) ML Lab File ID: _____

oisture: _____ decanted: (Y/N) ___ Date Received: 11/18/93

traction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/19/93

centrated Extract Volume: 2000 (uL) Date Analyzed: 11/30/93

jection Volume: 2.00 (uL) Dilution Factor: 1.00

Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.077	U
319-85-7	beta-BHC	0.077	U
319-86-8	delta-BHC	0.077	U
58-89-9	gamma-BHC (Lindane)	0.077	U
76-44-8	Heptachlor	0.077	U
309-00-2	Aldrin	0.077	U
1024-57-3	Heptachlor epoxide	0.077	U
959-98-8	Endosulfan I	0.077	U
60-57-1	Dieldrin	0.15	U
72-55-9	4,4'-DDE	0.15	U
72-20-8	Endrin	0.15	U
33213-65-9	Endosulfan II	0.15	U
72-54-8	4,4'-DDD	0.15	U
1031-07-8	Endosulfan sulfate	0.15	U
50-29-3	4,4'-DDT	0.15	U
72-43-5	Methoxychlor	0.77	U
53494-70-5	Endrin ketone	0.15	U
7421-93-4	Endrin aldehyde	0.15	U
5103-71-9	alpha-Chlordane	0.077	U
5103-74-2	gamma-Chlordane	0.077	U
8001-35-2	Toxaphene	7.7	U
12674-11-2	Aroclor-1016	1.5	U
11104-28-2	Aroclor-1221	3.1	U
11141-16-5	Aroclor-1232	1.5	U
53469-21-9	Aroclor-1242	1.5	U
12672-29-6	Aroclor-1248	1.5	U
11097-69-1	Aroclor-1254	1.5	U
11096-82-5	Aroclor-1260	1.5	U

(SECTION II)

Nuclide	Ave activity	Energy	Activity	Code	Peak	MDA	Comments
Ra-226	0.00000E+00	609.31	0.0000E+00		P	9.4983E+01	
		1764.49	0.0000E+00	?	P	2.0042E+02	
		1120.29	0.0000E+00	%	P	1.8808E+02	
Th-232	0.00000E+00	911.07	0.0000E+00	%	P	1.2093E+02	
		969.11	0.0000E+00	?	P	1.7080E+02	
		338.40	0.0000E+00	&	P	1.9548E+02	
U-235	0.00000E+00	143.76	0.0000E+00	%		1.4206E+02	
		163.33	0.0000E+00	%		3.1409E+02	
		205.31	0.0000E+00	&		3.8295E+02	
U-238	2.78333E+03	63.29	1.4759E+03	(		1.9796E+03	
		92.38	4.5104E+03	*(		1.8853E+03	
		92.80	3.3129E+03	(		1.8550E+03	
AM-241	0.00000E+00	59.54	0.0000E+00	%		3.5751E+02	

(- This peak used in the nuclide activity average.

* - Peak is too wide, but only one peak in library.
! - Peak is part of a multiplet and this area went negative during deconvolution.
? - Peak is too narrow.
@ - Peak is too wide at FW25M, but ok at FWHM.
% - Peak fails sensitivity test.
$ - Peak identified, but first peak of this nuclide failed one or more qualification tests.
+ - Peak activity higher than counting uncertainty range.
- - Peak activity lower than counting uncertainty range.
= - Peak outside analysis energy range.
& - Calculated peak centroid is not close enough to the library energy centroid for positive identification.
P - Peakbackground subtraction

**** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

NUCLIDE		TIME OF COUNT ACTIVITY PCI	TIME CORRECTED ACTIVITY PCI	UNCERTAINTY COUNTING PCI	2 SIGMA TOTAL PCI
K-40	<	8.19E+02	8.19E+02		
CO-60	<	1.32E+01	1.32E+01		
CS-137	<	1.54E+01	1.54E+01		
Ra-226	<	9.50E+01	9.50E+01		
Th-232	<	1.21E+02	1.21E+02		
U-235	<	1.42E+02	1.42E+02		
U-238		2.7833E+03	2.7833E+03	944.89	1153.04
AM-241	<	3.58E+02	3.58E+02		

S U M M A R Y

TOTAL ACTIVITY (6.4 to 1941.1 keV) 2.7833320E+03 PCI

Analysis time 6.2 seconds.

1A (SECTION IV)

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 603

ab Name: GEOTEC Contract:

Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12197

35

atrix: (soil/water) WATER Lab Sample ID: 216675

mple wt/vol: 5.0 (g/mL) ML Lab File ID: 216675

vel: (low/med) LOW Date Received: 11/18/93

Moisture: not dec. 100. Date Analyzed: 11/22/93

lumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	CHLOROMETHANE	10.	U
74-83-9	BROMOMETHANE	10.	U
75-01-4	VINYL CHLORIDE	10.	U
75-00-3	CHLOROETHANE	10.	U
75-09-2	METHYLENE CHLORIDE	5.	U
67-64-1	ACETONE	10.	U
75-15-0	CARBON DISULFIDE	5.	U
75-35-4	1,1-DICHLOROETHENE	5.	U
75-34-3	1,1-DICHLOROETHANE	5.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	U
67-66-3	CHLOROFORM	5.	U
107-06-2	1,2-DICHLOROETHANE	5.	U
78-93-3	2-BUTANONE	10.	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	U
56-23-5	CARBON TETRACHLORIDE	5.	U
108-05-4	VINYL ACETATE	10.	U
75-27-4	BROMODICHLOROMETHANE	5.	U
78-87-5	1,2-DICHLOROPROPANE	5.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	U
79-01-6	TRICHLOROETHENE	5.	U
124-48-1	DIBROMOCHLOROMETHANE	5.	U
79-00-5	1,1,2-TRICHLOROETHANE	5.	U
71-43-2	BENZENE	5.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	U
75-25-2	BROMOFORM	5.	U
108-10-1	4-METHYL-2-PENTANONE	10.	U
591-78-6	2-HEXANONE	10.	U
127-18-4	TETRACHLOROETHENE	5.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	U
108-88-3	TOLUENE	5.	U
108-90-7	CHLOROBENZENE	5.	U
100-41-4	ETHYLBENZENE	5.	U
100-42-5	STYRENE	5.	U
1330-20-7	M,P-XYLENE	5.	U
95-47-6	O-XYLENE	5.	U

(SECTION V)

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_603 35

ab Name: CN GEOTECH Contract: _____

ab Code: _____ Case No.: 12197 SAS No.: _____ SDG No.: _____

atrix: (soil/water) WATER Lab Sample ID: 216675

ample wt/vol: 940.0 (g/mL) ML Lab File ID: AS674

evel: (low/med) LOW Date Received: 11/18/93

Moisture: _____ decanted: (Y/N) ___ Date Extracted: 11/18/93

oncentrated Extract Volume: 1000 (uL) Date Analyzed: 12/07/93

njection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)Ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-Di-n-Propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)Methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-Methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	27	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	27	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	27	U
83-32-9	Acenaphthene	11	U

(SECTION V)

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_603 36

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12197 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 216675

Sample wt/vol: 940.0 (g/mL) ML Lab File ID: AS674

Level: (low/med) LOW Date Received: 11/18/93

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 11/18/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/07/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	27	U
100-02-7	4-Nitrophenol	27	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
86-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	27	U
534-52-1	4,6-Dinitro-2-Methylphenol	27	U
86-30-6	N-Nitrosodiphenylamine (1)	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
87-86-5	Pentachlorophenol	27	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-Butylphthalate	11	U
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	27	U
56-55-3	Benzo(a)Anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	bis(2-Ethylhexyl)Phthalate	3	J
117-84-0	Di-n-Octyl Phthalate	11	U
205-99-2	Benzo(b)Fluoranthene	11	U
207-08-9	Benzo(k)Fluoranthene	11	U
50-32-8	Benzo(a)Pyrene	11	U
193-39-5	Indeno(1,2,3-cd)Pyrene	11	U
53-70-3	Dibenz(a,h)Anthracene	11	U
191-24-2	Benzo(g,h,i)Perylene	11	U

(1) - Cannot be separated from Diphenylamine

(SECTION III)

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB603

) Name: CN GEOTECH Contract: _____

) Code: CNG Case No.: MONT4 SAS No.: _____ SDG No.: 12197

13

:rix: (soil/water) WATER Lab Sample ID: 216675

ıple wt/vol: 130.0 (g/mL) ML Lab File ID: _____

loisture: _____ decanted: (Y/N) ___ Date Received: 11/18/93

:raction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/19/93

ıcentrated Extract Volume: 2000 (uL) Date Analyzed: 11/30/93

jection Volume: 2.00 (uL) Dilution Factor: 1.00

: Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.077	U
319-85-7	beta-BHC	0.077	U
319-86-8	delta-BHC	0.077	U
58-89-9	gamma-BHC (Lindane)	0.077	U
76-44-8	Heptachlor	0.077	U
309-00-2	Aldrin	0.077	U
1024-57-3	Heptachlor epoxide	0.077	U
959-98-8	Endosulfan I	0.077	U
60-57-1	Dieldrin	0.15	U
72-55-9	4,4'-DDE	0.15	U
72-20-8	Endrin	0.15	U
33213-65-9	Endosulfan II	0.15	U
72-54-8	4,4'-DDD	0.15	U
1031-07-8	Endosulfan sulfate	0.15	U
50-29-3	4,4'-DDT	0.15	U
72-43-5	Methoxychlor	0.77	U
53494-70-5	Endrin ketone	0.15	U
7421-93-4	Endrin aldehyde	0.15	U
5103-71-9	alpha-Chlordane	0.077	U
5103-74-2	gamma-Chlordane	0.077	U
8001-35-2	Toxaphene	7.7	U
12674-11-2	Aroclor-1016	1.5	U
11104-28-2	Aroclor-1221	3.1	U
11141-16-5	Aroclor-1232	1.5	U
53469-21-9	Aroclor-1242	1.5	U
12672-29-6	Aroclor-1248	1.5	U
11097-69-1	Aroclor-1254	1.5	U
11096-82-5	Aroclor-1260	1.5	U

Spectrum name: 216675.SPC

(SECTION II)
NBB 603
13

Nuclide	Ave activity	Energy	Activity	Code	Peak MDA	Comments
Th-232	0.00000E+00	911.07	0.0000E+00		P 1.2122E+02	
		969.11	0.0000E+00	%	P 1.6402E+02	
		338.40	0.0000E+00	&	P 1.6271E+02	
U-235	0.00000E+00	143.76	0.0000E+00	%	7.7054E+01	
		163.33	0.0000E+00	%	4.1960E+02	
		205.31	0.0000E+00	&	3.6308E+02	
U-238	0.00000E+00	63.29	0.0000E+00	%	2.0336E+03	
		92.38	1.2298E+03		1.6458E+03	
		92.80	0.0000E+00	%	1.6157E+03	
Am-241	0.00000E+00	59.54	0.0000E+00	%	3.4153E+02	

(- This peak used in the nuclide activity average.

* - Peak is too wide, but only one peak in library.
! - Peak is part of a multiplet and this area went negative during deconvolution.
? - Peak is too narrow.
@ - Peak is too wide at FW25M, but ok at FWHM.
% - Peak fails sensitivity test.
$ - Peak identified, but first peak of this nuclide failed one or more qualification tests.
\+ - Peak activity higher than counting uncertainty range.
\- - Peak activity lower than counting uncertainty range.
= - Peak outside analysis energy range.
& - Calculated peak centroid is not close enough to the library energy centroid for positive identification.
P - Peakbackground subtraction

*** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

NUCLIDE		TIME OF COUNT ACTIVITY PCI	TIME CORRECTED ACTIVITY PCI	UNCERTAINTY 2 SIGMA COUNTING PCI	TOTAL PCI
K-40	<	8.20E+02	8.20E+02		
Co-60	<	1.64E+01	1.64E+01		
Cs-137	<	1.78E+01	1.78E+01		
Ra-226	<	8.90E+01	8.90E+01		
Th-232	<	1.21E+02	1.21E+02		
U-235	<	7.71E+01	7.71E+01		
U-238	<	2.03E+03	2.03E+03		
Am-241	<	3.42E+02	3.42E+02		

S U M M A R Y

TOTAL ACTIVITY (6.4 to 1941.1 keV) 0.0000000E+00 PCI

Analysis time 6.4 seconds.

SAMPLE CROSS REFERENCE V2.04

CHEM-NUCLEAR GEOTECH ANALYTICAL LABORATORY

REQUISITION(S): 12198

CUSTOMER ID	TICKET	LAB ID
DRUM 559	NBB 605	216677
DRUM 559	NBB 606	216678
DRUM 560	NBB 607	216679
TRIP BLANK	NBB 604	216676

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 604 16

ab Name: GEOTEC Contract:

Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12198

atrix: (soil/water) WATER Lab Sample ID: 216676

mple wt/vol: 5.0 (g/mL) ML Lab File ID: 216676

vel: (low/med) LOW Date Received: 11/18/93

Moisture: not dec. 100. (SECTION IV) Date Analyzed: 11/23/93

lumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	CHLOROMETHANE	10.	U
74-83-9	BROMOMETHANE	10.	U
75-01-4	VINYL CHLORIDE	10.	U
75-00-3	CHLOROETHANE	10.	U
75-09-2	METHYLENE CHLORIDE	1.	J
67-64-1	ACETONE	10.	U
75-15-0	CARBON DISULFIDE	5.	U
75-35-4	1,1-DICHLOROETHENE	5.	U
75-34-3	1,1-DICHLOROETHANE	5.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	U
67-66-3	CHLOROFORM	2.	J
107-06-2	1,2-DICHLOROETHANE	5.	U
78-93-3	2-BUTANONE	10.	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	U
56-23-5	CARBON TETRACHLORIDE	5.	U
108-05-4	VINYL ACETATE	10.	U
75-27-4	BROMODICHLOROMETHANE	5.	U
78-87-5	1,2-DICHLOROPROPANE	5.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	U
79-01-6	TRICHLOROETHENE	5.	U
124-48-1	DIBROMOCHLOROMETHANE	5.	U
79-00-5	1,1,2-TRICHLOROETHANE	5.	U
71-43-2	BENZENE	5.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	U
75-25-2	BROMOFORM	5.	U
108-10-1	4-METHYL-2-PENTANONE	10.	U
591-78-6	2-HEXANONE	10.	U
127-18-4	TETRACHLOROETHENE	5.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	U
108-88-3	TOLUENE	5.	U
108-90-7	CHLOROBENZENE	5.	U
100-41-4	ETHYLBENZENE	5.	U
100-42-5	STYRENE	5.	U
1330-20-7	M,P-XYLENE	5.	U
95-47-6	O-XYLENE	5.	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 605 31

Lab Name: GEOTEC Contract:

Lab Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12198

Matrix: (soil/water) WATER Lab Sample ID: 216677DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 216677DL

Level: (low/med) LOW Date Received: 11/18/93

% Moisture: not dec. 100. (SECTION IV) Date Analyzed: 11/23/93

Column: (pack/cap) CAP Dilution Factor: 20.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	CHLOROMETHANE	200.	U
74-83-9	BROMOMETHANE	200.	U
75-01-4	VINYL CHLORIDE	200.	U
75-00-3	CHLOROETHANE	200.	U
75-09-2	METHYLENE CHLORIDE	100.	U
67-64-1	ACETONE	1500.	
75-15-0	CARBON DISULFIDE	100.	U
75-35-4	1,1-DICHLOROETHENE	100.	U
75-34-3	1,1-DICHLOROETHANE	100.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	100.	U
156-59-2	CIS-1,2-DICHLOROETHENE	100.	U
67-66-3	CHLOROFORM	100.	U
107-06-2	1,2-DICHLOROETHANE	100.	U
78-93-3	2-BUTANONE	230.	
71-55-6	1,1,1-TRICHLOROETHANE	100.	U
56-23-5	CARBON TETRACHLORIDE	100.	U
108-05-4	VINYL ACETATE	200.	U
75-27-4	BROMODICHLOROMETHANE	100.	U
78-87-5	1,2-DICHLOROPROPANE	100.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	100.	U
79-01-6	TRICHLOROETHENE	100.	U
124-48-1	DIBROMOCHLOROMETHANE	100.	U
79-00-5	1,1,2-TRICHLOROETHANE	100.	U
71-43-2	BENZENE	100.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	100.	U
75-25-2	BROMOFORM	100.	U
108-10-1	4-METHYL-2-PENTANONE	200.	U
591-78-6	2-HEXANONE	200.	U
127-18-4	TETRACHLOROETHENE	100.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	100.	U
108-88-3	TOLUENE	100.	U
108-90-7	CHLOROBENZENE	100.	U
100-41-4	ETHYLBENZENE	100.	U
100-42-5	STYRENE	100.	U
1330-20-7	M,P-XYLENE	100.	U
95-47-6	O-XYLENE	100.	U

RUST GEOTECH INC. - INORGANIC ANALYSIS REPORT

FORM 1
INORGANIC ANALYSES DATA SHEET

LAB SAMPLE NO.

216677
NBB 605

No.: _216677__ Matrix: WATER_

Received: _11/18/93 % Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1820	B		PM
7440-38-2	Arsenic	790		E	F
7440-41-7	Beryllium	4720		*	P
7440-43-9	Cadmium	23600			PM
7440-47-3	Chromium	824000		E*	P
7440-50-8	Copper	178		EN	P
7439-92-1	Lead	319		*	PM
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	103000		E*	P
7782-49-2	Selenium	100	U	EN	F
7440-22-4	Silver	500	U	N	P
7440-28-0	Thallium	586		E	PM
7440-66-6	Zinc	439000			P

(SECTION III

or Before: LIMEGREEN Clarity Before: OPAQUE Texture: _____

or After: LIMEGREEN Clarity After: OPAQUE Artifacts: _____

ments:

(SECTION V)

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB605

Lab Name: CN GEOTECH Contract: _____

Lab Code: CNG Case No.: MONT4 SAS No.: _____ SDG No.: 12197

Matrix: (soil/water) WATER Lab Sample ID: 216677 18

Sample wt/vol: 125.0 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 11/18/93

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/19/93

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 11/30/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.080	U
319-85-7	beta-BHC	0.080	U
319-86-8	delta-BHC	0.080	U
58-89-9	gamma-BHC (Lindane)	0.080	U
76-44-8	Heptachlor	0.080	U
309-00-2	Aldrin	0.080	U
1024-57-3	Heptachlor epoxide	0.080	U
959-98-8	Endosulfan I	0.080	U
60-57-1	Dieldrin	0.16	U
72-55-9	4,4'-DDE	0.16	U
72-20-8	Endrin	0.16	U
33213-65-9	Endosulfan II	0.16	U
72-54-8	4,4'-DDD	0.16	U
1031-07-8	Endosulfan sulfate	0.16	U
50-29-3	4,4'-DDT	0.16	U
72-43-5	Methoxychlor	0.80	U
53494-70-5	Endrin ketone	0.16	U
7421-93-4	Endrin aldehyde	0.16	U
5103-71-9	alpha-Chlordane	0.080	U
5103-74-2	gamma-Chlordane	0.080	U
8001-35-2	Toxaphene	8.0	U
12674-11-2	Aroclor-1016	1.6	U
11104-28-2	Aroclor-1221	3.2	U
11141-16-5	Aroclor-1232	1.6	U
53469-21-9	Aroclor-1242	1.6	U
12672-29-6	Aroclor-1248	1.6	U
11097-69-1	Aroclor-1254	1.6	U
11096-82-5	Aroclor-1260	1.6	U

NBB 605 17

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

NUCLIDE		TIME OF COUNT ACTIVITY PCI	TIME CORRECTED ACTIVITY PCI	UNCERTAINTY COUNTING PCI	2 SIGMA TOTAL PCI
K-40	<	8.43E+02	8.43E+02		
Co-60	<	1.68E+01	1.68E+01		
CS-137	<	1.48E+01	1.48E+01		
Ra-226		1.3259E+02	1.3259E+02	66.09	67.18
Th-232	<	1.35E+02	1.35E+02		
U-235		6.6975E+02	6.6975E+02	191.06	200.46
U-238		2.5065E+04	2.5065E+04	2047.52	6293.24
AM-241	<	8.81E+02	8.81E+02		

S U M M A R Y

TOTAL ACTIVITY (6.4 to 1941.1 keV) 2.5866860E+04 PCI

Analysis time 6.5 seconds.

(SECTION II)

RUST GEOTECH INC. - INORGANIC ANALYSIS REPORT

FORM 1
INORGANIC ANALYSES DATA SHEET

LAB SAMPLE NO.
216678
NBB 606

G No.: _216677__ Matrix: WATER_

te Received: _11/18/93 % Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_ (SECTION I

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2030	B		PM
7440-38-2	Arsenic	750		E	F
7440-41-7	Beryllium	2270		*	P
7440-43-9	Cadmium	23900			PM
7440-47-3	Chromium	579000		E*	P
7440-50-8	Copper	187		EN	P
7439-92-1	Lead	197	B	*	PM
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	87700		E*	P
7782-49-2	Selenium	100	U	EN	F
7440-22-4	Silver	500	U	N	P
7440-28-0	Thallium	691		E	PM
7440-66-6	Zinc	473000			P

lor Before: LIMEGREEN Clarity Before: OPAQUE Texture: _____

lor After: LIMEGREEN Clarity After: OPAQUE Artifacts: _____

mments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 607 58

Lab Name: GEOTEC Contract:

Lab Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12198

Matrix: (soil/water) WATER Lab Sample ID: 216679DL2

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 216679DL2

Level: (low/med) LOW Date Received: 11/18/93

% Moisture: not dec. 100. (SECTION IV) Date Analyzed: 11/24/93

Column: (pack/cap) CAP Dilution Factor: 5000.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	CHLOROMETHANE	100000.	U
74-83-9	BROMOMETHANE	100000.	U
75-01-4	VINYL CHLORIDE	100000.	U
75-00-3	CHLOROETHANE	100000.	U
75-09-2	METHYLENE CHLORIDE	50000.	U
67-64-1	ACETONE	610000.	
75-15-0	CARBON DISULFIDE	50000.	U
75-35-4	1,1-DICHLOROETHENE	50000.	U
75-34-3	1,1-DICHLOROETHANE	50000.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	50000.	U
156-59-2	CIS-1,2-DICHLOROETHENE	50000.	U
67-66-3	CHLOROFORM	50000.	U
107-06-2	1,2-DICHLOROETHANE	50000.	U
78-93-3	2-BUTANONE	1500000.	
71-55-6	1,1,1-TRICHLOROETHANE	50000.	U
56-23-5	CARBON TETRACHLORIDE	50000.	U
108-05-4	VINYL ACETATE	100000.	U
75-27-4	BROMODICHLOROMETHANE	50000.	U
78-87-5	1,2-DICHLOROPROPANE	50000.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	50000.	U
79-01-6	TRICHLOROETHENE	50000.	U
124-48-1	DIBROMOCHLOROMETHANE	50000.	U
79-00-5	1,1,2-TRICHLOROETHANE	50000.	U
71-43-2	BENZENE	50000.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	50000.	U
75-25-2	BROMOFORM	50000.	U
108-10-1	4-METHYL-2-PENTANONE	100000.	U
591-78-6	2-HEXANONE	100000.	U
127-18-4	TETRACHLOROETHENE	50000.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	50000.	U
108-88-3	TOLUENE	50000.	U
108-90-7	CHLOROBENZENE	50000.	U
100-41-4	ETHYLBENZENE	50000.	U
100-42-5	STYRENE	50000.	U
1330-20-7	M,P-XYLENE	50000.	U
95-47-6	O-XYLENE	50000.	U

RUST GEOTECH INC. - INORGANIC ANALYSIS REPORT

6

FORM 1
INORGANIC ANALYSES DATA SHEET

LAB SAMPLE NO.

216679
NBB 607

G No.: _216677__ Matrix: WATER_

te Received: _11/18/93 % Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

(SECTION I

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.5	B		PM
7440-38-2	Arsenic	4.0	U	W	F
7440-41-7	Beryllium	1.0	U	*	P
7440-43-9	Cadmium	14.1			PM
7440-47-3	Chromium	19.8		E*	P
7440-50-8	Copper	17.2	B	EN	P
7439-92-1	Lead	34.6		*	PM
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	47.3		E*	P
7782-49-2	Selenium	2.0	U	N	F
7440-22-4	Silver	5.0	U	N	P
7440-28-0	Thallium	1.0	U	E	PM
7440-66-6	Zinc	6140			P

lor Before: YELLOW___ Clarity Before: CLOUDY Texture: _____

lor After: YELLOW___ Clarity After: CLOUDY Artifacts: _____

mments:

1D (SECTION V)

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB607

Lab Name: CN GEOTECH Contract: _____

Lab Code: CNG Case No.: MONT4 SAS No.: _____ SDG No.: 12197

23

Matrix: (soil/water) WATER Lab Sample ID: 216679

Sample wt/vol: 130.0 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 11/18/93

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/19/93

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 11/30/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.077	U
319-85-7	beta-BHC	0.077	U
319-86-8	delta-BHC	0.077	U
58-89-9	gamma-BHC (Lindane)	0.077	U
76-44-8	Heptachlor	0.077	U
309-00-2	Aldrin	0.077	U
1024-57-3	Heptachlor epoxide	0.077	U
959-98-8	Endosulfan I	0.077	U
60-57-1	Dieldrin	0.15	U
72-55-9	4,4'-DDE	0.15	U
72-20-8	Endrin	0.15	U
33213-65-9	Endosulfan II	0.15	U
72-54-8	4,4'-DDD	0.15	U
1031-07-8	Endosulfan sulfate	0.15	U
50-29-3	4,4'-DDT	0.15	U
72-43-5	Methoxychlor	0.77	U
53494-70-5	Endrin ketone	0.15	U
7421-93-4	Endrin aldehyde	0.15	U
5103-71-9	alpha-Chlordane	0.077	U
5103-74-2	gamma-Chlordane	0.077	U
8001-35-2	Toxaphene	7.7	U
12674-11-2	Aroclor-1016	1.5	U
11104-28-2	Aroclor-1221	3.1	U
11141-16-5	Aroclor-1232	1.5	U
53469-21-9	Aroclor-1242	1.5	U
12672-29-6	Aroclor-1248	1.5	U
11097-69-1	Aroclor-1254	1.5	U
11096-82-5	Aroclor-1260	1.5	U

NBB 607

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Nuclide	Ave activity	Energy	Activity	Code	Peak MDA	Comments
Th-232	0.00000E+00	911.07	0.0000E+00	P	1.1121E+02	
		969.11	0.0000E+00 %	P	1.6148E+02	
		338.40	0.0000E+00 &	P	2.1175E+02	
U-235	0.00000E+00	143.76	0.0000E+00 &		1.3652E+02	
		163.33	0.0000E+00 %		3.3782E+02	
		205.31	0.0000E+00 &		4.4012E+02	
U-238	0.00000E+00	63.29	0.0000E+00 %		1.8365E+03	
		92.38	0.0000E+00 %		1.8029E+03	
		92.80	1.2544E+03 $		1.8211E+03	
AM-241	0.00000E+00	59.54	0.0000E+00 %		3.1260E+02	

(SECTION II)

(- This peak used in the nuclide activity average.

* - Peak is too wide, but only one peak in library.
! - Peak is part of a multiplet and this area went negative during deconvolution.
? - Peak is too narrow.
@ - Peak is too wide at FW25M, but ok at FWHM.
% - Peak fails sensitivity test.
$ - Peak identified, but first peak of this nuclide failed one or more qualification tests.
+ - Peak activity higher than counting uncertainty range.
- - Peak activity lower than counting uncertainty range.
= - Peak outside analysis energy range.
& - Calculated peak centroid is not close enough to the library energy centroid for positive identification.
P - Peakbackground subtraction

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

NUCLIDE		TIME OF COUNT ACTIVITY PCI	TIME CORRECTED ACTIVITY PCI	UNCERTAINTY 2 SIGMA COUNTING PCI	TOTAL PCI
K-40	<	8.27E+02	8.27E+02		
Co-60	<	1.01E+01	1.01E+01		
Cs-137	<	2.57E+01	2.57E+01		
Ra-226	<	8.90E+01	8.90E+01		
Th-232	<	1.11E+02	1.11E+02		
U-235	<	1.37E+02	1.37E+02		
U-238	<	1.84E+03	1.84E+03		
Am-241	<	3.13E+02	3.13E+02		

S U M M A R Y

TOTAL ACTIVITY (6.4 to 1941.1 keV) 0.0000000E+00 PCI

Analysis time 6.2 seconds.

SAMPLE CROSS REFERENCE V2.04

CHEM-NUCLEAR GEOTECH ANALYTICAL LABORATORY

REQUISITION(S): 12203

CUSTOMER ID	TICKET	LAB ID
C DRAIN PIT	NBB 610	216732
CORE C	NBB 611	216733
EQUIPMENT BLANK	NBB 612	216734
TRIP BLANK	NBB 609	216731
VALVEPIT BLDG.7	NBB 608	216730

(SECTION III)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 608 20

ab Name: GEOTEC Contract: 1

ab Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12203

atrix: (soil/water) SOIL Lab Sample ID: 216730

ample wt/vol: 5.0 (g/mL) G Lab File ID: 216730

evel: (low/med) LOW Date Received: 11/19/93

Moisture: not dec. 23. Date Analyzed: 11/29/93

olumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	CHLOROMETHANE	13.	U
74-83-9	BROMOMETHANE	13.	U
75-01-4	VINYL CHLORIDE	13.	U
75-00-3	CHLOROETHANE	13.	U
75-09-2	METHYLENE CHLORIDE	7.	U
67-64-1	ACETONE	13.	U
75-15-0	CARBON DISULFIDE	7.	U
75-35-4	1,1-DICHLOROETHENE	7.	U
75-34-3	1,1-DICHLOROETHANE	7.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	7.	U
156-59-2	CIS-1,2-DICHLOROETHENE	7.	U
67-66-3	CHLOROFORM	7.	U
107-06-2	1,2-DICHLOROETHANE	7.	U
78-93-3	2-BUTANONE	13.	U
71-55-6	1,1,1-TRICHLOROETHANE	7.	U
56-23-5	CARBON TETRACHLORIDE	7.	U
108-05-4	VINYL ACETATE	13	U
75-27-4	BROMODICHLOROMETHANE	7.	U
78-87-5	1,2-DICHLOROPROPANE	7.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	7.	U
79-01-6	TRICHLOROETHENE	7.	U
124-48-1	DIBROMOCHLOROMETHANE	7.	U
79-00-5	1,1,2-TRICHLOROETHANE	7.	U
71-43-2	BENZENE	7.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	7.	U
75-25-2	BROMOFORM	7.	U
108-10-1	4-METHYL-2-PENTANONE	13.	U
591-78-6	2-HEXANONE	13.	U
127-18-4	TETRACHLOROETHENE	7.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	7.	U
108-88-3	TOLUENE	7.	U
108-90-7	CHLOROBENZENE	7.	U
100-41-4	ETHYLBENZENE	7.	U
100-42-5	STYRENE	7.	U
1330-20-7	M,P-XYLENE	7.	U
95-47-6	O-XYLENE	7.	U

(SECTION VI)

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_608 33

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12203 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 216730

Sample wt/vol: 30.30 (g/mL) G Lab File ID: AS680

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: 21 decanted: (Y/N) N Date Extracted: 11/23/93

Concentrated Extract Volume: 4500.0 (uL) Date Analyzed: 12/08/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3700	U
111-44-4	bis(2-Chloroethyl)Ether	3700	U
95-57-8	2-Chlorophenol	3700	U
541-73-1	1,3-Dichlorobenzene	3700	U
106-46-7	1,4-Dichlorobenzene	3700	U
95-50-1	1,2-Dichlorobenzene	3700	U
95-48-7	2-Methylphenol	3700	U
108-60-1	2,2'-oxybis(1-Chloropropane)	3700	U
106-44-5	4-Methylphenol	3700	U
621-64-7	N-Nitroso-Di-n-Propylamine	3700	U
67-72-1	Hexachloroethane	3700	U
98-95-3	Nitrobenzene	3700	U
78-59-1	Isophorone	3700	U
88-75-5	2-Nitrophenol	3700	U
105-67-9	2,4-Dimethylphenol	3700	U
111-91-1	bis(2-Chloroethoxy)Methane	3700	U
120-83-2	2,4-Dichlorophenol	3700	U
120-82-1	1,2,4-Trichlorobenzene	3700	U
91-20-3	Naphthalene	3700	U
106-47-8	4-Chloroaniline	3700	U
87-68-3	Hexachlorobutadiene	3700	U
59-50-7	4-Chloro-3-Methylphenol	3700	U
91-57-6	2-Methylnaphthalene	3700	U
77-47-4	Hexachlorocyclopentadiene	3700	U
88-06-2	2,4,6-Trichlorophenol	3700	U
95-95-4	2,4,5-Trichlorophenol	9000	U
91-58-7	2-Chloronaphthalene	3700	U
88-74-4	2-Nitroaniline	9000	U
131-11-3	Dimethylphthalate	3700	U
208-96-8	Acenaphthylene	3700	U
606-20-2	2,6-Dinitrotoluene	3700	U
99-09-2	3-Nitroaniline	9000	U
83-32-9	Acenaphthene	3700	U

1C (SECTION VI)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_608 34

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12203 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 216730

Sample wt/vol: 30.30 (g/mL) G Lab File ID: AS680

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: 21 decanted: (Y/N) N Date Extracted: 11/23/93

Concentrated Extract Volume: 4500.0 (uL) Date Analyzed: 12/08/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	9000	U
100-02-7	4-Nitrophenol	9000	U
132-64-9	Dibenzofuran	3700	U
121-14-2	2,4-Dinitrotoluene	3700	U
84-66-2	Diethylphthalate	3700	U
7005-72-3	4-Chlorophenyl-phenylether	3700	U
86-73-7	Fluorene	3700	U
100-01-6	4-Nitroaniline	9000	U
534-52-1	4,6-Dinitro-2-Methylphenol	9000	U
86-30-6	N-Nitrosodiphenylamine (1)	3700	U
101-55-3	4-Bromophenyl-phenylether	3700	U
118-74-1	Hexachlorobenzene	3700	U
87-86-5	Pentachlorophenol	9000	U
85-01-8	Phenanthrene	3700	U
120-12-7	Anthracene	3700	U
86-74-8	Carbazole	3700	U
84-74-2	Di-n-Butylphthalate	3700	U
206-44-0	Fluoranthene	3700	U
129-00-0	Pyrene	3700	U
85-68-7	Butylbenzylphthalate	3700	U
91-94-1	3,3'-Dichlorobenzidine	7400	U
56-55-3	Benzo(a)Anthracene	3700	U
218-01-9	Chrysene	3700	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1600	BJ
117-84-0	Di-n-Octyl Phthalate	3700	U
205-99-2	Benzo(b)Fluoranthene	3700	U
207-08-9	Benzo(k)Fluoranthene	3700	U
50-32-8	Benzo(a)Pyrene	3700	U
193-39-5	Indeno(1,2,3-cd)Pyrene	3700	U
53-70-3	Dibenz(a,h)Anthracene	3700	U
191-24-2	Benzo(g,h,i)Perylene	3700	U

(1) - Cannot be separated from Diphenylamine

(SECTION II)

RUST GEOTECH INC. - INORGANIC ANALYSIS REPORT

FORM 1
INORGANIC ANALYSES DATA SHEET

LAB SAMPLE NO.

216730
NBB 608

No.: _216730__ Matrix: SOIL__

Received: _11/19/93 % Solids: _76.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.7	B	N	PM
7440-38-2	Arsenic	8.9		N*	F
7440-41-7	Beryllium	0.50	B		P
7440-43-9	Cadmium	5.7			PM
7440-47-3	Chromium	59.2		N*	P
7440-50-8	Copper	277		*	P
7439-92-1	Lead	215			PM
7439-97-6	Mercury	0.15		N	CV
7440-02-0	Nickel	59.4		*	P
7782-49-2	Selenium	1.0	B	S	F
7440-22-4	Silver	1.3	U		P
7440-28-0	Thallium	0.38	B		PM
7440-66-6	Zinc	1020			P

or Before: BROWN Clarity Before: _____ Texture: FINE

lor After: BROWN Clarity After: _____ Artifacts: _____

ments:

1D (SECTION V)

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB608 11

Lab Name: CN GEOTECH Contract:

Lab Code: CNG Case No.: 12203 SAS No.: SDG No.: NBB608

Matrix: (soil/water) SOIL Lab Sample ID: 216730

Sample wt/vol: 31.1 (g/mL) G Lab File ID:

% Moisture: 21 decanted: (Y/N) N Date Received: 11/19/93

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/24/93

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/08/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.1	U
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	4.0	U
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.0	U
7421-93-4	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	82	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	190	
11096-82-5	Aroclor-1260	40	U

(SECTION III)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 609 34

Name: GEOTEC Contract: 1

Lab Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12203

Matrix: (soil/water) WATER Lab Sample ID: 216731

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 216731

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: not dec. 100. Date Analyzed: 11/29/93

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	CHLOROMETHANE	10.	U
74-83-9	BROMOMETHANE	10.	U
75-01-4	VINYL CHLORIDE	10.	U
75-00-3	CHLOROETHANE	10.	U
75-09-2	METHYLENE CHLORIDE	5.	U
67-64-1	ACETONE	10.	U
75-15-0	CARBON DISULFIDE	5.	U
75-35-4	1,1-DICHLOROETHENE	5.	U
75-34-3	1,1-DICHLOROETHANE	5.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	U
67-66-3	CHLOROFORM	3.	J
107-06-2	1,2-DICHLOROETHANE	5.	U
78-93-3	2-BUTANONE	10.	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	U
56-23-5	CARBON TETRACHLORIDE	5.	U
108-05-4	VINYL ACETATE	10.	U
75-27-4	BROMODICHLOROMETHANE	5.	U
78-87-5	1,2-DICHLOROPROPANE	5.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	U
79-01-6	TRICHLOROETHENE	5.	U
124-48-1	DIBROMOCHLOROMETHANE	5.	U
79-00-5	1,1,2-TRICHLOROETHANE	5.	U
71-43-2	BENZENE	5.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	U
75-25-2	BROMOFORM	5.	U
108-10-1	4-METHYL-2-PENTANONE	10.	U
591-78-6	2-HEXANONE	10.	U
127-18-4	TETRACHLOROETHENE	5.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	U
108-88-3	TOLUENE	5.	U
108-90-7	CHLOROBENZENE	5.	U
100-41-4	ETHYLBENZENE	5.	U
100-42-5	STYRENE	5.	U
1330-20-7	M,P-XYLENE	5.	U
95-47-6	O-XYLENE	5.	U

(SECTION III)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 610 43

Lab Name: GEOTEC Contract: 1

Lab Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12203

Matrix: (soil/water) SOIL Lab Sample ID: 216732

Sample wt/vol: 1.0 (g/mL) G Lab File ID: 216732

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: not dec. 30. Date Analyzed: 11/29/93

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	CHLOROMETHANE	72.	U
74-83-9	BROMOMETHANE	72.	U
75-01-4	VINYL CHLORIDE	61.	J
75-00-3	CHLOROETHANE	72.	U
75-09-2	METHYLENE CHLORIDE	8300.	E
67-64-1	ACETONE	2000.	E
75-15-0	CARBON DISULFIDE	36.	U
75-35-4	1,1-DICHLOROETHENE	110.	
75-34-3	1,1-DICHLOROETHANE	36.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	36.	U
156-59-2	CIS-1,2-DICHLOROETHENE	23.	J
67-66-3	CHLOROFORM	16000.	E
107-06-2	1,2-DICHLOROETHANE	390.	
78-93-3	2-BUTANONE	250.	
71-55-6	1,1,1-TRICHLOROETHANE	36.	U
56-23-5	CARBON TETRACHLORIDE	36.	U
108-05-4	VINYL ACETATE	72	U
75-27-4	BROMODICHLOROMETHANE	36.	U
78-87-5	1,2-DICHLOROPROPANE	36.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	36.	U
79-01-6	TRICHLOROETHENE	5500.	E
124-48-1	DIBROMOCHLOROMETHANE	36.	U
79-00-5	1,1,2-TRICHLOROETHANE	36.	U
71-43-2	BENZENE	270.	
10061-02-6	TRANS-1,3-DICHLOROPROPENE	36.	U
75-25-2	BROMOFORM	36.	U
108-10-1	4-METHYL-2-PENTANONE	72.	U
591-78-6	2-HEXANONE	72.	U
127-18-4	TETRACHLOROETHENE	5900.	E
79-34-5	1,1,2,2-TETRACHLOROETHANE	36.	U
108-88-3	TOLUENE	4800.	E
108-90-7	CHLOROBENZENE	36.	U
100-41-4	ETHYLBENZENE	1300.	
100-42-5	STYRENE	36.	U
1330-20-7	M,P-XYLENE	6200.	E
95-47-6	O-XYLENE	2000.	E

(SECTION III)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 610 65

ab Name: GEOTEC Contract:

Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12203

atrix: (soil/water) SOIL Lab Sample ID: 216732M

mple wt/vol: 4.0 (g/mL) G Lab File ID: 216732M

vel: (low/med) MED Date Received: 11/19/93

Moisture: not dec. 30. Date Analyzed: 12/ 1/93

lumn: (pack/cap) CAP Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	CHLOROMETHANE	3600.	U
74-83-9	BROMOMETHANE	3600.	U
75-01-4	VINYL CHLORIDE	3600.	U
75-00-3	CHLOROETHANE	3600.	U
75-09-2	METHYLENE CHLORIDE	7100.	
67-64-1	ACETONE	2600.	J
75-15-0	CARBON DISULFIDE	1800.	U
75-35-4	1,1-DICHLOROETHENE	1800.	U
75-34-3	1,1-DICHLOROETHANE	1800.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	1800.	U
156-59-2	CIS-1,2-DICHLOROETHENE	1800.	U
67-66-3	CHLOROFORM	17000.	
107-06-2	1,2-DICHLOROETHANE	1800.	U
78-93-3	2-BUTANONE	3600.	U
71-55-6	1,1,1-TRICHLOROETHANE	1800.	U
56-23-5	CARBON TETRACHLORIDE	1800.	U
108-05-4	VINYL ACETATE	3600.	U
75-27-4	BROMODICHLOROMETHANE	1800.	U
78-87-5	1,2-DICHLOROPROPANE	1800.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	1800.	U
79-01-6	TRICHLOROETHENE	6300.	
124-48-1	DIBROMOCHLOROMETHANE	1800	U
79-00-5	1,1,2-TRICHLOROETHANE	1800.	U
71-43-2	BENZENE	1800.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1800.	U
75-25-2	BROMOFORM	1800.	U
108-10-1	4-METHYL-2-PENTANONE	3600.	U
591-78-6	2-HEXANONE	3600.	U
127-18-4	TETRACHLOROETHENE	4600.	
79-34-5	1,1,2,2-TETRACHLOROETHANE	1800.	U
108-88-3	TOLUENE	4000.	
108-90-7	CHLOROBENZENE	1800.	U
100-41-4	ETHYLBENZENE	2400.	
100-42-5	STYRENE	1800	U
1330-20-7	M,P-XYLENE	19000.	
95-47-6	O-XYLENE	11000.	

1B (SECTION VI)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_610 54

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12203 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 216732

Sample wt/vol: 30.80 (g/mL) G Lab File ID: AS682

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: 35 decanted: (Y/N) N Date Extracted: 11/23/93

Concentrated Extract Volume: 4500.0 (uL) Date Analyzed: 12/08/93

Injection Volume: 2.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) Y pH: 7.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	89000	U
111-44-4	bis(2-Chloroethyl)Ether	89000	U
95-57-8	2-Chlorophenol	89000	U
541-73-1	1,3-Dichlorobenzene	89000	U
106-46-7	1,4-Dichlorobenzene	89000	U
95-50-1	1,2-Dichlorobenzene	89000	U
95-48-7	2-Methylphenol	89000	U
108-60-1	2,2'-oxybis(1-Chloropropane)	89000	U
106-44-5	4-Methylphenol	89000	U
621-64-7	N-Nitroso-Di-n-Propylamine	89000	U
67-72-1	Hexachloroethane	89000	U
98-95-3	Nitrobenzene	89000	U
78-59-1	Isophorone	89000	U
88-75-5	2-Nitrophenol	89000	U
105-67-9	2,4-Dimethylphenol	89000	U
111-91-1	bis(2-Chloroethoxy)Methane	89000	U
120-83-2	2,4-Dichlorophenol	89000	U
120-82-1	1,2,4-Trichlorobenzene	89000	U
91-20-3	Naphthalene	25000	J
106-47-8	4-Chloroaniline	89000	U
87-68-3	Hexachlorobutadiene	89000	U
59-50-7	4-Chloro-3-Methylphenol	89000	U
91-57-6	2-Methylnaphthalene	45000	J
77-47-4	Hexachlorocyclopentadiene	89000	U
88-06-2	2,4,6-Trichlorophenol	89000	U
95-95-4	2,4,5-Trichlorophenol	220000	U
91-58-7	2-Chloronaphthalene	89000	U
88-74-4	2-Nitroaniline	220000	U
131-11-3	Dimethylphthalate	89000	U
208-96-8	Acenaphthylene	89000	U
606-20-2	2,6-Dinitrotoluene	89000	U
99-09-2	3-Nitroaniline	220000	U
83-32-9	Acenaphthene	6000	J

1C (SECTION VI)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_610 55

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12203 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 216732

Sample wt/vol: 30.80 (g/mL) G Lab File ID: AS682

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: 35 decanted: (Y/N) N Date Extracted: 11/23/93

Concentrated Extract Volume: 4500.0 (uL) Date Analyzed: 12/08/93

Injection Volume: 2.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) Y pH: 7.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	220000	U
100-02-7	4-Nitrophenol	220000	U
132-64-9	Dibenzofuran	5700	J
121-14-2	2,4-Dinitrotoluene	89000	U
84-66-2	Diethylphthalate	89000	U
7005-72-3	4-Chlorophenyl-phenylether	89000	U
86-73-7	Fluorene	89000	U
100-01-6	4-Nitroaniline	220000	U
534-52-1	4,6-Dinitro-2-Methylphenol	220000	U
86-30-6	N-Nitrosodiphenylamine (1)	89000	U
101-55-3	4-Bromophenyl-phenylether	89000	U
118-74-1	Hexachlorobenzene	89000	U
87-86-5	Pentachlorophenol	220000	U
85-01-8	Phenanthrene	89000	U
120-12-7	Anthracene	89000	U
86-74-8	Carbazole	89000	U
84-74-2	Di-n-Butylphthalate	89000	U
206-44-0	Fluoranthene	89000	U
129-00-0	Pyrene	89000	U
85-68-7	Butylbenzylphthalate	89000	U
91-94-1	3,3'-Dichlorobenzidine	180000	U
56-55-3	Benzo(a)Anthracene	89000	U
218-01-9	Chrysene	89000	U
117-81-7	bis(2-Ethylhexyl)Phthalate	89000	U
117-84-0	Di-n-Octyl Phthalate	89000	U
205-99-2	Benzo(b)Fluoranthene	89000	U
207-08-9	Benzo(k)Fluoranthene	89000	U
50-32-8	Benzo(a)Pyrene	89000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	89000	U
53-70-3	Dibenz(a,h)Anthracene	89000	U
191-24-2	Benzo(g,h,i)Perylene	89000	U

(1) - Cannot be separated from Diphenylamine

(SECTION II)

FORM 1
INORGANIC ANALYSES DATA SHEET

LAB SAMPLE NO.
216732
NBB 610

g No.: _216730__ Matrix: SOIL__

ce Received: _11/19/93 % Solids: _62.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.7	B	N	PM
7440-38-2	Arsenic	33.6		SN*	F
7440-41-7	Beryllium	0.61	B		P
7440-43-9	Cadmium	8.0			PM
7440-47-3	Chromium	33.6		N*	P
7440-50-8	Copper	724		*	P
7439-92-1	Lead	1850			PM
7439-97-6	Mercury	0.85		N	CV
7440-02-0	Nickel	35.1		*	P
7782-49-2	Selenium	8.7		S	F
7440-22-4	Silver	1.6	U		P
7440-28-0	Thallium	0.91	B		PM
7440-66-6	Zinc	581			P

lor Before: BROWN Clarity Before: _____ Texture: FINE

lor After: BROWN Clarity After: _____ Artifacts: _____

mments:

1D (SECTION V)

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB610DL 23

ab Name: CN GEOTECH Contract: _____

b Code: CNG Case No.: 12203 SAS No.: _____ SDG No.: NBB608

atrix: (soil/water) SOIL Lab Sample ID: 216732DL

mple wt/vol: 30.8 (g/mL) G Lab File ID: _____

Moisture: 27 decanted: (Y/N) N Date Received: 11/19/93

xtraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/24/93

ncentrated Extract Volume: 5000 (uL) Date Analyzed: 12/09/93

njection Volume: 2.00 (uL) Dilution Factor: 20.0

PC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	45	U
319-85-7	beta-BHC	45	U
319-86-8	delta-BHC	45	U
58-89-9	gamma-BHC (Lindane)	45	U
76-44-8	Heptachlor	45	U
309-00-2	Aldrin	45	U
1024-57-3	Heptachlor epoxide	45	U
959-98-8	Endosulfan I	45	U
60-57-1	Dieldrin	88	U
72-55-9	4,4'-DDE	88	U
72-20-8	Endrin	88	U
33213-65-9	Endosulfan II	88	U
72-54-8	4,4'-DDD	88	U
1031-07-8	Endosulfan sulfate	88	U
50-29-3	4,4'-DDT	88	U
72-43-5	Methoxychlor	450	U
53494-70-5	Endrin ketone	88	U
7421-93-4	Endrin aldehyde	88	U
5103-71-9	alpha-Chlordane	45	U
5103-74-2	gamma-Chlordane	45	U
8001-35-2	Toxaphene	4500	U
12674-11-2	Aroclor-1016	880	U
11104-28-2	Aroclor-1221	1800	U
11141-16-5	Aroclor-1232	880	U
53469-21-9	Aroclor-1242	880	U
12672-29-6	Aroclor-1248	3400	
11097-69-1	Aroclor-1254	880	U
11096-82-5	Aroclor-1260	880	U

1A (SECTION III)

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 611

Lab Name: GEOTEC Contract: 1

Lab Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12203

Matrix: (soil/water) SOIL Lab Sample ID: 216733

123

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 216733

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: not dec. 21. Date Analyzed: 11/30/93

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	CHLOROMETHANE	13.	U
74-83-9	BROMOMETHANE	13.	U
75-01-4	VINYL CHLORIDE	13.	U
75-00-3	CHLOROETHANE	13.	U
75-09-2	METHYLENE CHLORIDE	6.	U
67-64-1	ACETONE	13.	U
75-15-0	CARBON DISULFIDE	6.	U
75-35-4	1,1-DICHLOROETHENE	6.	U
75-34-3	1,1-DICHLOROETHANE	6.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	6.	U
156-59-2	CIS-1,2-DICHLOROETHENE	6.	U
67-66-3	CHLOROFORM	6.	U
107-06-2	1,2-DICHLOROETHANE	6.	U
78-93-3	2-BUTANONE	13.	U
71-55-6	1,1,1-TRICHLOROETHANE	6.	U
56-23-5	CARBON TETRACHLORIDE	6.	U
108-05-4	VINYL ACETATE	13.	U
75-27-4	BROMODICHLOROMETHANE	6.	U
78-87-5	1,2-DICHLOROPROPANE	6.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	6.	U
79-01-6	TRICHLOROETHENE	6.	U
124-48-1	DIBROMOCHLOROMETHANE	6.	U
79-00-5	1,1,2-TRICHLOROETHANE	6.	U
71-43-2	BENZENE	6.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	6.	U
75-25-2	BROMOFORM	6.	U
108-10-1	4-METHYL-2-PENTANONE	13.	U
591-78-6	2-HEXANONE	13.	U
127-18-4	TETRACHLOROETHENE	6.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	6.	U
108-88-3	TOLUENE	6.	U
108-90-7	CHLOROBENZENE	6.	U
100-41-4	ETHYLBENZENE	6.	U
100-42-5	STYRENE	6.	U
1330-20-7	M,P-XYLENE	6.	U
95-47-6	O-XYLENE	6.	U

1B (SECTION VI)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_611 86

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12203 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 216733

Sample wt/vol: 30.40 (g/mL) G Lab File ID: AS665

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: 23 decanted: (Y/N) N Date Extracted: 11/30/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/03/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 10.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-Di-n-Propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)Methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	420	U

1C (SECTION VI)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_611 87

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12203 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 216733

Sample wt/vol: 30.40 (g/mL) G Lab File ID: AS665

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: 23 decanted: (Y/N) N Date Extracted: 11/30/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/03/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 10.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-Methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	420	U
120-12-7	Anthracene	420	U
86-74-8	Carbazole	420	U
84-74-2	Di-n-Butylphthalate	130	J
206-44-0	Fluoranthene	420	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	190	J
91-94-1	3,3'-Dichlorobenzidine	850	U
56-55-3	Benzo(a)Anthracene	420	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)Phthalate	100	BJ
117-84-0	Di-n-Octyl Phthalate	420	U
205-99-2	Benzo(b)Fluoranthene	420	U
207-08-9	Benzo(k)Fluoranthene	420	U
50-32-8	Benzo(a)Pyrene	420	U
193-39-5	Indeno(1,2,3-cd)Pyrene	420	U
53-70-3	Dibenz(a,h)Anthracene	420	U
191-24-2	Benzo(g,h,i)Perylene	420	U

(1) - Cannot be separated from Diphenylamine

(SECTION II)

RUST GEOTECH INC. - INORGANIC ANALYSIS REPORT 6

FORM 1
INORGANIC ANALYSES DATA SHEET

LAB SAMPLE NO.
216733
NBB 611

No.: _216730__ Matrix: SOIL__

Received: _11/19/93 % Solids: _78.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.25	U	N	PM
7440-38-2	Arsenic	9.2		+N*	F
7440-41-7	Beryllium	0.59	B		P
7440-43-9	Cadmium	0.29	B		PM
7440-47-3	Chromium	8.7		N*	P
7440-50-8	Copper	21.3		*	P
7439-92-1	Lead	15.2			PM
7439-97-6	Mercury	0.03	U	N	CV
7440-02-0	Nickel	24.6		*	P
7782-49-2	Selenium	0.81	B	W	F
7440-22-4	Silver	1.3	U		P
7440-28-0	Thallium	0.53	B		PM
7440-66-6	Zinc	75.3			P

or Before: BROWN Clarity Before: Texture: FINE

lor After: BROWN Clarity After: Artifacts:

ments:

1D

(SECTION V)

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB611 30

Lab Name: CN GEOTECH Contract: _____

Lab Code: CNG Case No.: 12203 SAS No.: _____ SDG No.: NBB608

Matrix: (soil/water) SOIL Lab Sample ID: 216733

Sample wt/vol: 31.0 (g/mL) G Lab File ID: _____

% Moisture: 22 decanted: (Y/N) N Date Received: 11/19/93

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/24/93

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/08/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.1	U
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	4.1	U
72-55-9	4,4'-DDE	4.1	U
72-20-8	Endrin	4.1	U
33213-65-9	Endosulfan II	4.1	U
72-54-8	4,4'-DDD	4.1	U
1031-07-8	Endosulfan sulfate	4.1	U
50-29-3	4,4'-DDT	4.1	U
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.1	U
7421-93-4	Endrin aldehyde	4.1	U
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	41	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	41	U
53469-21-9	Aroclor-1242	41	U
12672-29-6	Aroclor-1248	41	U
11097-69-1	Aroclor-1254	41	U
11096-82-5	Aroclor-1260	41	U

1A (SECTION III)

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB 612131

Lab Name: GEOTEC Contract: 1

Lab Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12203

Matrix: (soil/water) WATER Lab Sample ID: 216734

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 216734

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: not dec. 100. Date Analyzed: 11/29/93

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	CHLOROMETHANE	10.	U
74-83-9	BROMOMETHANE	10.	U
75-01-4	VINYL CHLORIDE	10.	U
75-00-3	CHLOROETHANE	10.	U
75-09-2	METHYLENE CHLORIDE	5.	U
67-64-1	ACETONE	10.	U
75-15-0	CARBON DISULFIDE	5.	U
75-35-4	1,1-DICHLOROETHENE	5.	U
75-34-3	1,1-DICHLOROETHANE	5.	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	U
67-66-3	CHLOROFORM	10.	
107-06-2	1,2-DICHLOROETHANE	5.	U
78-93-3	2-BUTANONE	10.	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	U
56-23-5	CARBON TETRACHLORIDE	5.	U
108-05-4	VINYL ACETATE	10.	U
75-27-4	BROMODICHLOROMETHANE	5.	U
78-87-5	1,2-DICHLOROPROPANE	5.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	U
79-01-6	TRICHLOROETHENE	5.	U
124-48-1	DIBROMOCHLOROMETHANE	5.	U
79-00-5	1,1,2-TRICHLOROETHANE	5.	U
71-43-2	BENZENE	5.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	U
75-25-2	BROMOFORM	5.	U
108-10-1	4-METHYL-2-PENTANONE	10.	U
591-78-6	2-HEXANONE	10.	U
127-18-4	TETRACHLOROETHENE	5.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	U
108-88-3	TOLUENE	5.	U
108-90-7	CHLOROBENZENE	5.	U
100-41-4	ETHYLBENZENE	5.	U
100-42-5	STYRENE	5.	U
1330-20-7	M,P-XYLENE	5.	U
95-47-6	O-XYLENE	5.	U

1B (SECTION VI)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_612114

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12203 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 216734

Sample wt/vol: 930.0 (g/mL) ML Lab File ID: AS668

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 11/22/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/07/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)Ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-Di-n-Propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)Methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-Methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	27	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	27	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	27	U
83-32-9	Acenaphthene	11	U

1C (SECTION VI)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB_612115

Lab Name: CN GEOTECH Contract: _____

Lab Code: _____ Case No.: 12203 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 216734

Sample wt/vol: 930.0 (g/mL) ML Lab File ID: AS668

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 11/22/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/07/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	27	U
100-02-7	4-Nitrophenol	27	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
86-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	27	U
534-52-1	4,6-Dinitro-2-Methylphenol	27	U
86-30-6	N-Nitrosodiphenylamine (1)	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
87-86-5	Pentachlorophenol	27	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-Butylphthalate	11	U
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	27	U
56-55-3	Benzo(a)Anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	bis(2-Ethylhexyl)Phthalate	8	J
117-84-0	Di-n-Octyl Phthalate	11	U
205-99-2	Benzo(b)Fluoranthene	11	U
207-08-9	Benzo(k)Fluoranthene	11	U
50-32-8	Benzo(a)Pyrene	11	U
193-39-5	Indeno(1,2,3-cd)Pyrene	11	U
53-70-3	Dibenz(a,h)Anthracene	11	U
191-24-2	Benzo(g,h,i)Perylene	11	U

(1) - Cannot be separated from Diphenylamine

(SECTION II)

RUST GEOTECH INC. - INORGANIC ANALYSIS REPORT

FORM 1
INORGANIC ANALYSES DATA SHEET

LAB SAMPLE NO.

216734
NBB 612

G No.: _216730__ Matrix: WATER_

te Received: _11/19/93 % Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.0	U		PM
7440-38-2	Arsenic	4.0	U		F
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	1.0	U		PM
7440-47-3	Chromium	4.0	U		P
7440-50-8	Copper	3.0	U		P
7439-92-1	Lead	1.1	B		PM
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.0	U		P
7782-49-2	Selenium	2.2	U	S	F
7440-22-4	Silver	5.0	U		P
7440-28-0	Thallium	1.0	B		PM
7440-66-6	Zinc	7.0	U		P

lor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

lor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

mments:

(SECTION IV)

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB612

Lab Name: CN GEOTECH Contract: _____

Lab Code: CNG Case No.: MONT4 SAS No.: _____ SDG No.: 12197

Matrix: (soil/water) WATER Lab Sample ID: 216734 28

Sample wt/vol: 125.0 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 11/19/93

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/23/93

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 12/01/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.080	U
319-85-7	beta-BHC	0.080	U
319-86-8	delta-BHC	0.080	U
58-89-9	gamma-BHC (Lindane)	0.080	U
76-44-8	Heptachlor	0.080	U
309-00-2	Aldrin	0.080	U
1024-57-3	Heptachlor epoxide	0.080	U
959-98-8	Endosulfan I	0.080	U
60-57-1	Dieldrin	0.16	U
72-55-9	4,4'-DDE	0.16	U
72-20-8	Endrin	0.16	U
33213-65-9	Endosulfan II	0.16	U
72-54-8	4,4'-DDD	0.16	U
1031-07-8	Endosulfan sulfate	0.16	U
50-29-3	4,4'-DDT	0.16	U
72-43-5	Methoxychlor	0.80	U
53494-70-5	Endrin ketone	0.16	U
7421-93-4	Endrin aldehyde	0.16	U
5103-71-9	alpha-Chlordane	0.080	U
5103-74-2	gamma-Chlordane	0.080	U
8001-35-2	Toxaphene	8.0	U
12674-11-2	Aroclor-1016	1.6	U
11104-28-2	Aroclor-1221	3.2	U
11141-16-5	Aroclor-1232	1.6	U
53469-21-9	Aroclor-1242	1.6	U
12672-29-6	Aroclor-1248	1.6	U
11097-69-1	Aroclor-1254	1.6	U
11096-82-5	Aroclor-1260	1.6	U

SAMPLE CROSS REFERENCE V2.04

CHEM-NUCLEAR GEOTECH ANALYTICAL LABORATORY

REQUISITION(S): 12204

CUSTOMER ID	TICKET	LAB ID
METHANOL RINSA	NBB 613	216735
NONMETHANOLRINS	NBB 614	216736

(SECTION IV)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

NBB 613 13

Name: GEOTEC Contract: 1

Lab Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12204

Matrix: (soil/water) WATER Lab Sample ID: 216735

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 216735

Level: (low/med) LOW Date Received: 11/19/93

% Moisture: not dec. 100. Date Analyzed: 12/ 2/93

Column: (pack/cap) CAP Dilution Factor: 5.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	VINYL CHLORIDE	50.	U
75-35-4	1,1-DICHLOROETHENE	25.	U
67-66-3	CHLOROFORM	140.	
107-06-2	1,2-DICHLOROETHANE	25.	U
78-93-3	2-BUTANONE	730.	
56-23-5	CARBON TETRACHLORIDE	25.	U
79-01-6	TRICHLOROETHENE	25.	U
71-43-2	BENZENE	25.	U
127-18-4	TETRACHLOROETHENE	25.	U
108-90-7	CHLOROBENZENE	25.	U
110-86-1	PYRIDINE	250.	U

(SECTION III)

TCLP ORGANICS ANALYSIS DATA SHEET

SEMIVOLATILE COMPOUNDS

SAMPLE ID
NBB_613

LAB SAMP ID 216735

FILE NAME AS684

EXT. METH CONT

DIL. FACTOR 1

SAMPLE VOL. 250 ML

EXT. VOL. 1000 uL

CASE NO. 12204

RECEIVED 11/19/93

EXTRACTED 12/07/93

ANALYZED 12/09/93 14:41

UNITS UG/L

CAS NO.	COMPOUND	CONC.	FLAGS
106-46-7	1,4-Dichlorobenzene	40.0	U
67-72-1	Hexachloroethane	40.0	U
98-95-3	Nitrobenzene	40.0	U
87-68-3	Hexachlorobutadiene	40.0	U
88-06-2	2,4,6-Trichlorophenol	40.0	U
95-95-4	2,4,5-Trichlorophenol	100.0	U
121-14-2	2,4-Dinitrotoluene	40.0	U
118-74-1	Hexachlorobenzene	40.0	U
87-86-5	Pentachlorophenol	100.0	U
93-51-6	Cresol (Total)	120.0	U

Notes and summary data for this report.

U – Compound analyzed for but not detected. The reported value is the quantitation limit for the sample

(SECTION VI)

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB613

Lab Name: CN GEOTECH Contract: _____

Lab Code: CNG Case No.: MONT4 SAS No.: _____ SDG No.: 12197 33

Matrix: (soil/water) WATER Lab Sample ID: 216735

Sample wt/vol: 120.0 (g/mL) ML Lab File ID: _____

Moisture: _____ decanted: (Y/N) ___ Date Received: 11/19/93

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/23/93

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 12/01/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.084	U
319-85-7	beta-BHC	0.084	U
319-86-8	delta-BHC	0.084	U
58-89-9	gamma-BHC (Lindane)	0.084	U
76-44-8	Heptachlor	0.084	U
309-00-2	Aldrin	0.084	U
1024-57-3	Heptachlor epoxide	0.084	U
959-98-8	Endosulfan I	0.084	U
60-57-1	Dieldrin	0.17	U
72-55-9	4,4'-DDE	0.17	U
72-20-8	Endrin	0.17	U
33213-65-9	Endosulfan II	0.17	U
72-54-8	4,4'-DDD	0.17	U
1031-07-8	Endosulfan sulfate	0.17	U
50-29-3	4,4'-DDT	0.17	U
72-43-5	Methoxychlor	0.84	U
53494-70-5	Endrin ketone	0.17	U
7421-93-4	Endrin aldehyde	0.17	U
5103-71-9	alpha-Chlordane	0.084	U
5103-74-2	gamma-Chlordane	0.084	U
8001-35-2	Toxaphene	8.4	U
12674-11-2	Aroclor-1016	1.7	U
11104-28-2	Aroclor-1221	3.3	U
11141-16-5	Aroclor-1232	1.7	U
53469-21-9	Aroclor-1242	1.7	U
12672-29-6	Aroclor-1248	1.7	U
11097-69-1	Aroclor-1254	1.7	U
11096-82-5	Aroclor-1260	1.7	U

(SECTION II)
Spectrum name: 216735.SPC
NBB 613

Nuclide	Ave activity	Energy	Activity	Code	Peak MDA	Comments
Th-232	0.00000E+00	911.07	0.0000E+00	P	5.6302E+01	
		969.11	0.0000E+00 %	P	7.9347E+01	
		338.40	0.0000E+00 %	P	6.7472E+01	
U-235	0.00000E+00	143.76	0.0000E+00 %		2.8458E+01	
		163.33	0.0000E+00 %		9.4714E+01	
		205.31	0.0000E+00 &		1.1566E+02	
U-238	0.00000E+00	63.29	0.0000E+00 %		3.6726E+02	
		92.38	0.0000E+00 %		3.4135E+02	
		92.80	0.0000E+00 %		3.4772E+02	
AM-241	0.00000E+00	59.54	0.0000E+00 %		5.4943E+01	

(- This peak used in the nuclide activity average.

* - Peak is too wide, but only one peak in library.
! - Peak is part of a multiplet and this area went negative during deconvolution.
? - Peak is too narrow.
@ - Peak is too wide at FW25M, but ok at FWHM.
% - Peak fails sensitivity test.
$ - Peak identified, but first peak of this nuclide failed one or more qualification tests.
\+ - Peak activity higher than counting uncertainty range.
\- - Peak activity lower than counting uncertainty range.
= - Peak outside analysis energy range.
& - Calculated peak centroid is not close enough to the library energy centroid for positive identification.
P - Peakbackground subtraction

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

NUCLIDE		TIME OF COUNT ACTIVITY PCI	TIME CORRECTED ACTIVITY PCI	UNCERTAINTY 2 SIGMA COUNTING PCI	TOTAL PCI
K-40	<	4.63E+02	4.63E+02		
CO-60	<	5.60E+00	5.60E+00		
CS-137	<	6.00E+00	6.00E+00		
Ra-226	<	3.99E+01	3.99E+01		
Th-232	<	5.63E+01	5.63E+01		
U-235	<	2.85E+01	2.85E+01		
U-238	<	3.67E+02	3.67E+02		
AM-241	<	5.49E+01	5.49E+01		

S U M M A R Y

TOTAL ACTIVITY (6.3 to 1941.2 keV) 0.0000000E+00 PCI

Analysis time 6.3 seconds.

1A (SECTION IV) EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

NBB 614 21

Name: GEOTEC Contract: 1

Code: GEOTEC Case No.: 1 SAS No.: SDG No.: 12204

Matrix: (soil/water) WATER Lab Sample ID: 216736

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 216736

Level: (low/med) LOW Date Received: 11/19/93

Moisture: not dec. 100. Date Analyzed: 12/ 2/93

Column: (pack/cap) CAP Dilution Factor: 50.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	VINYL CHLORIDE	500.	U
75-35-4	1,1-DICHLOROETHENE	250.	U
67-66-3	CHLOROFORM	250.	U
107-06-2	1,2-DICHLOROETHANE	250.	U
78-93-3	2-BUTANONE	500.	U
56-23-5	CARBON TETRACHLORIDE	250.	U
79-01-6	TRICHLOROETHENE	250.	U
71-43-2	BENZENE	250.	U
127-18-4	TETRACHLOROETHENE	250.	U
108-90-7	CHLOROBENZENE	250.	U
110-86-1	PYRIDINE	2500.	U

(SECTION III)

TCLP ORGANICS ANALYSIS DATA SHEET

SEMIVOLATILE COMPOUNDS

SAMPLE ID
NBB_614

LAB SAMP ID 216736

FILE NAME AS687

EXT. METH CONT

DIL. FACTOR 1

SAMPLE VOL. 250 ML

EXT. VOL. 1000 uL

CASE NO. 12204

RECEIVED 11/19/93

EXTRACTED 12/07/93

ANALYZED 12/09/93 17:14

UNITS UG/L

CAS NO.	COMPOUND	CONC.	FLAGS
106-46-7	1,4-Dichlorobenzene	40.0	U
67-72-1	Hexachloroethane	40.0	U
98-95-3	Nitrobenzene	40.0	U
87-68-3	Hexachlorobutadiene	40.0	U
88-06-2	2,4,6-Trichlorophenol	40.0	U
95-95-4	2,4,5-Trichlorophenol	100.0	U
121-14-2	2,4-Dinitrotoluene	40.0	U
118-74-1	Hexachlorobenzene	40.0	U
87-86-5	Pentachlorophenol	100.0	U
93-51-6	Cresol (Total)	120.0	U

Notes and summary data for this report.

U – Compound analyzed for but not detected. The reported value is the quantitation limit for the sample

(SECTION V)

RUST GEOTECH INC. - INORGANIC ANALYSIS REPORT

4

FORM 1
INORGANIC ANALYSES DATA SHEET

LAB SAMPLE NO.

216736
NBB 614

G No.: _216735__ Matrix: TCLP__

e Received: _11/19/93 % Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	258	U		P
7440-39-3	Barium	176	B		P
7440-43-9	Cadmium	26.0	B		P
7440-47-3	Chromium	1170			P
7439-92-1	Lead	1200			P
7439-97-6	Mercury	0.40	U		CV
7782-49-2	Selenium	155	U		P
7440-22-4	Silver	11.0	B	N	P

or Before: BROWN Clarity Before: CLOUDY Texture:

lor After: BROWN Clarity After: CLOUDY Artifacts:

ments:

(SECTION VI)

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NBB614

Lab Name: CN GEOTECH Contract: _____

Lab Code: CNG Case No.: MONT4 SAS No.: _____ SDG No.: 12197

38

Matrix: (soil/water) WATER Lab Sample ID: 216736

Sample wt/vol: 130.0 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 11/19/93

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/23/93

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 12/01/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.077	U
319-85-7	beta-BHC	0.077	U
319-86-8	delta-BHC	0.077	U
58-89-9	gamma-BHC (Lindane)	0.077	U
76-44-8	Heptachlor	0.077	U
309-00-2	Aldrin	0.077	U
1024-57-3	Heptachlor epoxide	0.077	U
959-98-8	Endosulfan I	0.077	U
60-57-1	Dieldrin	0.15	U
72-55-9	4,4'-DDE	0.15	U
72-20-8	Endrin	0.15	U
33213-65-9	Endosulfan II	0.15	U
72-54-8	4,4'-DDD	0.15	U
1031-07-8	Endosulfan sulfate	0.15	U
50-29-3	4,4'-DDT	0.15	U
72-43-5	Methoxychlor	0.77	U
53494-70-5	Endrin ketone	0.15	U
7421-93-4	Endrin aldehyde	0.15	U
5103-71-9	alpha-Chlordane	0.077	U
5103-74-2	gamma-Chlordane	0.077	U
8001-35-2	Toxaphene	7.7	U
12674-11-2	Aroclor-1016	1.5	U
11104-28-2	Aroclor-1221	3.1	U
11141-16-5	Aroclor-1232	1.5	U
53469-21-9	Aroclor-1242	1.5	U
12672-29-6	Aroclor-1248	1.5	U
11097-69-1	Aroclor-1254	1.5	U
11096-82-5	Aroclor-1260	1.5	U

Spectrum name: 216736.SPC

NBB64 (SECTION II)

clide	Ave activity	Energy	Activity	Code	Peak MDA	Comments
S-137	0.00000E+00	661.60	0.0000E+00 %		1.7453E+01	
-226	0.00000E+00	609.31	0.0000E+00 %	P	8.9319E+01	
		1764.49	0.0000E+00 ?	P	1.6780E+02	
		1120.29	0.0000E+00 %	P	1.9134E+02	
-232	0.00000E+00	911.07	0.0000E+00 %	P	1.2589E+02	
		969.11	0.0000E+00 &	P	2.2069E+02	
		338.40	0.0000E+00 &	P	2.4452E+02	
J-235	0.00000E+00	143.76	0.0000E+00 &		1.3363E+02	
		163.33	0.0000E+00 &		2.7845E+02	
		205.31	0.0000E+00 &		2.7280E+02	
J-238	0.00000E+00	63.29	0.0000E+00 %		2.5450E+03	
		92.38	0.0000E+00 %		1.7490E+03	
		92.80	0.0000E+00 %		1.6982E+03	
M-241	0.00000E+00	59.54	0.0000E+00 %		4.4148E+02	

(- This peak used in the nuclide activity average.

* - Peak is too wide, but only one peak in library.
! - Peak is part of a multiplet and this area went negative during deconvolution.
? - Peak is too narrow.
@ - Peak is too wide at FW25M, but ok at FWHM.
% - Peak fails sensitivity test.
$ - Peak identified, but first peak of this nuclide failed one or more qualification tests.
+ - Peak activity higher than counting uncertainty range.
- - Peak activity lower than counting uncertainty range.
= - Peak outside analysis energy range.
& - Calculated peak centroid is not close enough to the library energy centroid for positive identification.
P - Peakbackground subtraction

*** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

UCLIDE		TIME OF COUNT ACTIVITY PCI/G	TIME CORRECTED ACTIVITY PCI/G	UNCERTAINTY COUNTING PCI/G	2 SIGMA TOTAL PCI/G
-40	<	8.20E+02	8.20E+02		
O-60	<	1.81E+01	1.81E+01		
-137	<	1.75E+01	1.75E+01		
-226	<	8.93E+01	8.93E+01		
h-232	<	1.26E+02	1.26E+02		
235	<	1.34E+02	1.34E+02		
238	<	2.55E+03	2.55E+03		
M-241	<	4.41E+02	4.41E+02		

S U M M A R Y

TAL ACTIVITY (6.4 to 1941.1 keV) 0.0000000E+00 PCI/G

alysis time 6.1 seconds.

(SECTION III)

DEFINITION OF QUALIFIERS

Volatiles Data

U	This qualifier indicates that the compound was analyzed for but not detected.
J	This qualifier indicates an estimated value. This qualifier is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria, but the result is less than the sample quantitation limit and greater than zero.
B	This qualifier is used when the analyte is found in the associated blank as well as in the sample.
E	This qualifier identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
X,Y,Z	These are laboratory-defined qualifiers. If used, they will be fully described in the analytical summary.

DEFINITION OF QUALIFIERS

Semivolatiles Data

U	This qualifier indicates that the compound was analyzed for but not detected.
J	This qualifier indicates an estimated value. This qualifier is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria, but the result is less than the sample quantitation limit and greater than zero.
B	This qualifier is used when the analyte is found in the associated blank as well as in the sample.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag below, a "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag.
E	This qualifier identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
N	This qualifier indicates presumptive identification of a tentatively identified compound, when the identification is based on a mass spectral library search. It is applied to all TIC results except for general classifications (ie chlorinated hydrocarbons, etc.)
X,Y,Z	These are laboratory-defined qualifiers. If used, they will be fully described in the analytical summary.

(SECTION VI)

DEFINITION OF QUALIFIERS

PCB and/or Pesticide Data

U	This qualifier indicates that the compound was analyzed for but not detected.
J	This qualifier indicates an estimated value. This qualifier is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria, but the result is less than the sample quantitation limit and greater than zero.
B	This qualifier is used when the analyte is found in the associated blank as well as in the sample.
P	This qualifier is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X).
C	This qualifier applies to pesticide results where the identification has been confirmed by GC/MS.
X,Y,Z	These are laboratory-defined qualifiers. If used, they will be fully described in the analytical summary.

(SECTION V)

METAL's

DEFINITION OF QUALIFIERS

C (Concentration) Qualifiers

B The reported value was obtained from a reading that was less than the Required Detection Limit (RDL) but greater than or equal to the actual Detection Limit (DL).

U The analyte was not detected. The value reported is the DL corrected for any dilution in the sample preparation process and for percent solids if the sample is a solid.

Q Qualifiers

E The reported value is estimated because of the possible presence of interference. The E qualifier is present if the result for the ICP serial dilution is not within control limits or if the analytical (post-digestion) spike recovery for graphite furnace is less than 40% on both the original and the diluted sample.

M Duplicate injection precision for graphite furnace was not met. This qualifier is present if the result is greater than the RDL and the relative standard deviation of the duplicate injections was greater than 20% for both the original analysis and the repeated analysis.

N Spiked sample recovery is not within control limits.

S The reported value was obtained by the Method of Standard Additions (MSA).

W Analytical (post-digestion) spike recovery for graphite furnace analysis is out of the control limits (85-115%), while the sample concentration is less than 50% of spike concentration.

* Duplicate analysis is not within control limits.

+ Correlation coefficient for the MSA is less than 0.995.

The "S", "W", and "+" qualifiers are mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M (Method) Qualifiers

P ICP Atomic Emission Spectroscopy
PM ICP Mass Spectrometry
F Graphite Furnace Atomic Absorption Spectroscopy
CV Cold Vapor Atomic Absorption Spectroscopy
A Flame Atomic Absorption Spectroscopy
C Spectrophotometric
IC Ion Chromatography
M Microwave Digestion
NR The analysis is not required.